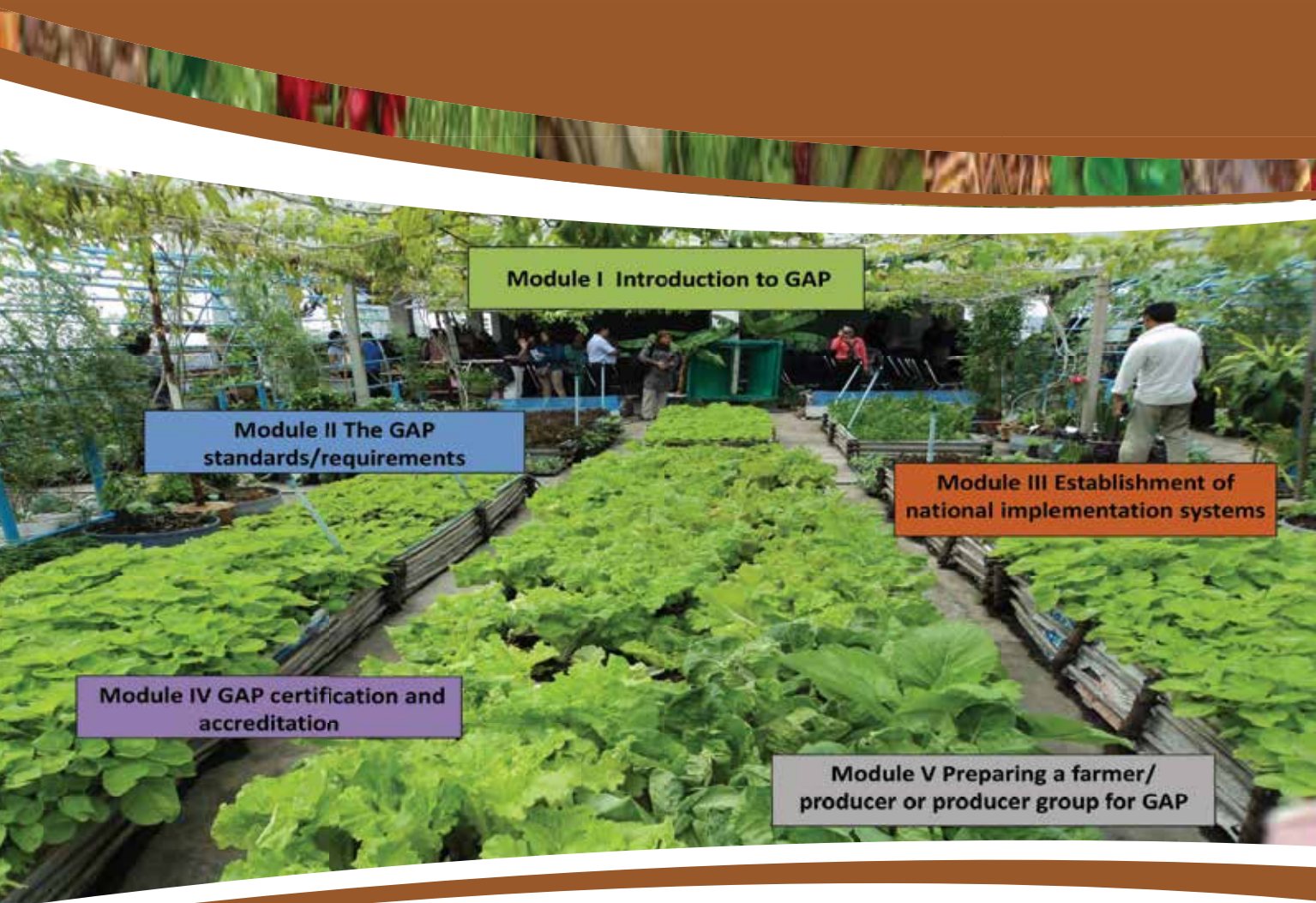




**Food and Agriculture
Organization of the
United Nations**

A SCHEME AND TRAINING MANUAL ON GOOD AGRICULTURAL PRACTICES (GAP) FOR FRUITS AND VEGETABLES

Volume 2 Training manual



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**A SCHEME AND TRAINING MANUAL ON GOOD
AGRICULTURAL PRACTICES FOR FRUITS AND
VEGETABLES**

Volume 2 Training manual

Food and Agriculture Organization of the United Nations

Regional Office for Asia and the Pacific

Bangkok, 2016

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PREFACE

Food safety has gained increasing importance over the years due to its impact on the health of consumers and the growth in the domestic and international trade in food products. Production of safe food is essential for protecting consumers from the hazards of foodborne illnesses. Further, food safety is an integral part of food security and also contributes towards increasing competitiveness in export markets.

Food safety hazards may occur at different stages of the food chain starting right from primary production and extending to secondary and tertiary processing, storage and distribution, and packaging. It is therefore very important to address food safety starting from the farm level. Implementing good practices during on-farm production and post-production processes is of immense importance for assuring a safe food supply. Good Agricultural Practices (GAP), as defined by FAO, are a “collection of principles to apply for on-farm production and post-production processes, resulting in safe and healthy food and non-food agriculture products, while taking into account economic, social and environmental sustainability”.

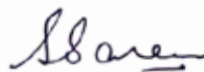
Many importing countries as well as domestic buyers, especially organized retailers, are now requiring producers to implement GAP as a prerequisite for procurement to ensure the quality and safety of their produce and because of which there is now a greater focus on implementing such systems.

There has not been much focus on adopting GAP in the South Asian Association for Regional Cooperation (SAARC) countries, and most of the food safety standards are aimed towards either the end products or the processing sector. A similar situation exists in the other countries. Based on a request from some SAARC countries, a regional project on “Development of Standards and Scheme for GAP Implementation and Certification in Countries of SAARC” was developed. Under this project a regional scheme on GAP for fruits and vegetables for SAARC countries has been developed in three parts: Part I consists of a common standard on GAP for the horticulture sector along with criteria for certification; Part II deals with the establishment of a national implementation structure for GAP in a country; and Part III deals with the certification and accreditation aspects of GAP.

The project has supported some pilot countries to internalize and adopt the SAARC GAP scheme – both the standard and the supporting implementation infrastructure through internal multi-stakeholder consultations. This ensures the development of national schemes based on international processes, guarantees reliable certification and strengthens the quality of infrastructure for GAP in the pilot countries. The common GAP standard and implementation system in these countries is also expected to promote trade in the SAARC region.

The countries selected for the pilot projects were Bangladesh, Bhutan, Maldives, Nepal and Sri Lanka. These pilot projects comprised identification of the scheme owner and the certification body in each of the pilot countries, adoption/adaptation of the scheme documents, strengthening certification and accreditation infrastructure for GAP, structured training sessions and awareness programmes for the scheme owner and certification and accreditation personnel, as well as training of trainers programmes for those individuals who would after intensive training train and counsel farmers/ farmer groups selected by these countries.

This publication comprises two volumes: Volume 1 documents the entire scheme and Volume 2 covers a training package on this scheme. It is hoped that the publications will be useful not only to SAARC countries but also to other countries.



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Acronyms

AB	Accreditation body or board
ASEAN	Association of Southeast Asian Nations
ASEANGAP	Association of Southeast Asian Nations Good Agricultural Practices
BAB	Bangladesh Accreditation Board
CA	Corrective Action or Competent Authority or Conformity Assessment
CAB	Conformity assessment body
CAC	Codex Alimentarius Commission
CB	Certification Body
CC	Certification committee
CCFFV	Codex Committee on Fresh Fruits and Vegetables
CCPFV	Codex Committee on Processed Fruits and Vegetables
EC	European Commission
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAO-RAP	FAO Regional Office for Asia and the Pacific
GAP	Good Agricultural Practices
GAP-VF	GAP Vegetable Farming (Singapore)
GHP	Good Hygienic Practices
GMP	Good Manufacturing Practices
HACCP	Hazard Analysis and Critical Control Point
IAF	International Accreditation Forum
IB	Inspection bodies
ICS	Internal control system
IEC	International Electro-technical Commission
IPM	Integrated Pest Management
IPPC	International Plant Protection Convention
ISO	International Organization for Standardization
MFN	Most favoured nation
ML	Maximum limits
MLA	Multilateral Recognition Arrangement
MOU	Memorandum of Understanding
MRL	Maximum residue levels
MRA	Mutual Recognition Arrangement
MSDS	Material safety data sheets
NA	Not applicable
NC	Nonconformity or Non-compliance
NGO	Non-governmental organization
NI	National interpretation
OIE	Organization International des Epizooties or International Organization for Animal Health
PHI	Pre-harvest interval

PPP	Plant protection product
QMS	Quality management system
RA	Risk assessment
SAARC	South Asian Association for Regional Cooperation
SALM	Malaysian Farm Accreditation Scheme
SC	Steering committee
SO	Scheme owner
SPS	Sanitary and Phyto-sanitary
TBT	Technical Barriers to Trade
TCP	Technical Co-operation Programme
WHO	World Health Organisation of the United Nations
WTO	World Trade Organization

Introduction

Food safety has gained increasing importance over the years because of its impact on the health of consumers and the growth in the domestic and international trade in food products. Production of safe food is essential for protecting consumers from the hazards of foodborne illnesses. Furthermore, food safety is an integral part of food security and also contributes towards increasing competitiveness in export markets. Hazards in food may be introduced at different stages of the food chain starting right from the primary production, e.g. residues above permitted levels, microbial contaminants and heavy metals. It therefore becomes important to address food safety right from food production at farm level. Implementing Good Agricultural Practices (GAP) during on-farm production and post-production processes resulting in safe agricultural products is of immense importance for ensuring a safe food supply.

Many importing countries as well as domestic buyers, especially organized retailers, are requiring producers to implement GAP as a prerequisite for procurement to ensure the quality and safety of their produce. In addition, implementing GAP also helps promote sustainable agriculture and contributes to meeting national and international environmental and social developmental objectives. It has been documented that implementation of GAP encourages promotion of optimum use of resources such as pesticides, fertilizers, and water, and eco-friendly agriculture. Its social dimension would be to protect the agricultural workers' health from improper use of chemicals and pesticides.

Some customers, especially the organized retailers, require that GAP implementing producers are certified. It is important that the certification body, when providing certification, follows unified and correct procedures for certification so that any bias is reduced and there is increased credibility and consumer confidence. This can be achieved if the certification body is itself accredited by an independent accreditation authority or implements the principles of accreditation.

To support countries in the region, a GAP scheme for fruits and vegetables has been developed in three parts: Part I consists of a common standard on GAP for the horticulture sector along with criteria for certification; Part II deals with the establishment of a national implementation structure for GAP in a country; and Part III deals with the certification and accreditation aspects of GAP. These are detailed in Volume 1 of the publication.

To support countries in implementing GAP, this training manual has been developed based on the GAP scheme for fruits and vegetables and includes GAP standards for the horticulture sector, guidance on establishment of national implementation systems and establishment of a scheme owner, guidance on establishing a certification body to certify GAP and preparation of a farmer or farmer group to implement GAP in relation to getting certified. This manual can be used for guidance when implementing GAP for other agricultural produce as well.

About the training manual

The training manual is a teaching tool for training/raising the awareness of governments, auditors/and others about GAP for fruits and vegetables.

The manual can be used by governments or scheme owners to build quality infrastructure and institutional capacity in countries with respect to standards on GAP for fruits and vegetables and certification systems in line with the requirements of international standards.

The manual can also be used as a resource material for promoting food safety, produce quality, environmental sustainability and socially acceptable practices.

Structure of the manual

The manual basically covers five modules with more than one session in each module. The modules along with the sessions are given below:

Module 1 Introduction to GAP

- Session 1 Background to food safety and introduction to GAP
- Session 2 Different GAP standards – GLOBALG.A.P/ other GAPs

Module 2 The GAP standards/ requirements

- Session 3 An overview of GAP standard – structure, requirements and conformity criteria
- Session 4 Food safety module
- Session 5 Environmental management module
- Session 6 Workers' health, safety and welfare module
- Session 7 Produce quality module
- Session 8 General requirements module (including group controls)
- Session 9 GAP verification criteria, control points and checklists

Module 3 Establishment of national implementation systems for GAP

- Session 10 Options and structure for implementing GAP in a country
- Session 11 Guidance for establishing a scheme owner

Module 4 GAP Certification and accreditation

- Session 12 Importance of GAP certification and accreditation
- Session 13 Criteria for selection of an accreditation body for GAP
- Session 14 Establishment of a certification body for GAP
- Session 15 GAP certification process
- Session 16 Auditing and auditing techniques

Module 5 preparing a farmer/ producer or producer group for GAP

- Session 17 Preparing the farmer/ farmer groups for implementing GAP
- Session 18 The application and approval process

The manual can be used to meet the requirements of the stakeholders. Three courses have been designed, namely:

- “Training of stakeholders on the GAP scheme for fruits and vegetables” – Annex 1A
- “Training of trainers on the GAP scheme for fruits and vegetables” – Annex 1B
- “Training programme for auditors/inspectors on the GAP scheme for fruits and vegetables” – Annex 1C.

The programme for stakeholders is of two days duration and the other two programmes are each of three days duration. The programme may be selected by the trainer according to the needs of the stakeholders.

The information in the manual includes notes and power point presentations for each session and references/ other information sources. Additional information will be provided during the training.

How to use the manual

The training material is arranged in five modules and 18 sessions as shown above. Many of the modules have practical exercises designed to deepen participants' understanding of the module's materials. The module contains both written material as well as slides that can be used by the trainer. The slides are given in the annexes and each slide corresponds to a specific session.

Three programmes have been developed as indicated above. Depending on the programme, various modules and sessions can be covered. The reference to the corresponding training slides is given at the end of training material for each session. The host institution may design the format of training from the given schedules, choose the sequence of the sessions from the schedules and the information regarding the slides may be picked from each of the sessions that are annexed in the manual. For details of the GAP standards, the national implementation infrastructure and the certification and accreditation aspects, reference may be made to the scheme, which is given in volume 1 of this publication.

Additional references

Additional resources include the following reference documents:

- The GAP scheme including standards for the food safety, environment management, produce quality, and workers health, safety and welfare modules.
- Various ISO standards such as ISO/IEC 17065 General requirements for bodies operating product certification systems and ISO 19011 Guidelines for auditing management systems.
- ISO/IEC 17000, Conformity assessment — Vocabulary and general principles.
- ISO/IEC 17020, Conformity assessment — Requirements for the operation of various types of bodies performing inspection.
- ISO/IEC 17021, Conformity assessment — Requirements for bodies providing audit and certification of management systems.
- ISO/IEC 17025, General requirements for the competence of testing and calibration laboratories.
- ISO/IEC 17000:2004, Conformity assessment — Vocabulary and general principles.
- ISO/IEC 17065:2012, Conformity assessment — Requirements for bodies certifying products, processes and services.

Users of this training manual should constantly look out for new information and technological advances that expand their understanding of topics associated with GAP. Awareness of these advances will allow updating the recommendations and information contained in this manual as appropriate to keep training content current.

Opening session

Introduction to the training course, resource persons and participants

30 minutes

1. Objectives of the session

The objective of this session is to introduce the training course, the resource persons and the participants.

2. Objectives of the training course

The objectives of the training programme will be tailored according to the participants' profiles. The objectives are to:

- i) support in building quality infrastructure and institutional capacity in countries with respect to the implementation of GAP for fruits and vegetables – both standards and certification systems;
- ii) train the scheme owner and the certification body in auditing and inspection skills;
- iii) raise awareness of stakeholders, including farmers and producers, about GAP for fruits and vegetables;
- iv) enable trainers to support producers wishing to implement GAP with a focus on certification aspects; and
- v) transfer knowledge gained on successful practices in the countries of the region.

3. Learning outcomes

Participants should be able to:

- i) support the government or scheme owner in establishing a quality infrastructure in the country with respect to GAP for fruits and vegetables – both standards and certification system – in line with international standards;
- ii) assist producers (individuals and producer groups) to implement GAP including management of an internal control systems (ICS) in relation to certification requirements;
- iii) lead teams attempting to consolidate strategies for quality and safety programmes and initiatives in relation to GAP and also with regard to certification, including aspects of auditing; and
- iv) organize training and awareness raising courses on GAP tailored to the needs of the country with a focus on certification.

4. About this course material

The training manual is a teaching tool for training/raising the awareness of governments, auditors/and others about GAP for fruits and vegetables. It can be used by governments or scheme owners to build quality infrastructure and institutional capacity in countries with respect to standards on GAP for fruits and vegetables as well as certification systems in line with international standards. The manual can also be used as a resource material for promoting food safety, produce quality, environmental sustainability and socially acceptable practices. This manual provides information to support the delivery of the training course.

The manual is arranged in five modules and 18 sessions as follows:

Module 1 Introduction to GAP

- Session 1 Background to food safety and introduction to GAP
- Session 2 Different GAP standards – GLOBALG.A.P/ other GAPs

Module 2 The GAP standards/ requirements

- Session 3 An overview of GAP standards – structure, requirements and conformity criteria
- Session 4 Food safety module
- Session 5 Environmental management module
- Session 6 Workers' health, safety and welfare module
- Session 7 Produce quality module
- Session 8 General requirements module (including group controls)
- Session 9 GAP verification criteria, control points and checklists

Module 3 Establishment of national implementation systems

- Session 10 Options and structure for implementing GAP in a country
- Session 11 Guidance for establishing a scheme owner

Module 4 GAP certification and accreditation

- Session 12 Importance of GAP certification and accreditation
- Session 13 Criteria for selection of an accreditation body for GAP
- Session 14 Establishment of a certification body for GAP
- Session 15 GAP certification process
- Session 16 Auditing and auditing techniques

Module 5 Preparing a farmer/ producer or producer group for GAP

- Session 17 Preparing the farmer/ farmer groups for implementing GAP
- Session 18 The application and approval process

Three courses have been designed depending on the needs of stakeholders namely:

- i. “Training of stakeholders on the GAP scheme for fruits and vegetables” – two days duration – the participants will be representatives of the scheme owner, farmers/exporters of fruits and vegetables, officials of the departments of agriculture/horticulture, and sections dealing with soils, plant protection, post-harvest, water resources and the certification body (programme at Annex 1A).
- ii. “Training of trainers on the GAP scheme for fruits and vegetables” – three days duration – the participants will be selected by the scheme owner. The trained persons will be later used by the scheme owner and certification body for training others in the country (programme at Annex 1B).
- iii. “Training programme for auditors/inspectors on the GAP scheme for fruits and vegetables” – three days duration – the participants will be selected by the scheme owner and the certification body. The trained persons will later be used by the scheme owner and the certification body for auditing and inspection works in connection with the GAP certification scheme (programme at Annex 1C).

A particular programme may be selected by the organization that intends to conduct such training according to the needs of the participants. Every lecture session is followed by a discussion session when questions may be asked or clarifications sought. There are exercises to foster a better understanding of the subjects taught.

This course provides information to support the delivery of the training course. The information includes:

- i) notes and PowerPoint presentations for each session; and
- ii) references and other information sources (as relevant).

Additional information will be provided during the training course.

5. Training etiquette

The participants are to be requested to:

- go through the training material before the actual training;
- attend the whole training – their absence for even a part of the day would make it difficult for them to follow the training since each module builds on the previous one;
- switch their mobile phones to silent mode so as not to disturb fellow participants and tutors – they should try to avoid taking any calls while the training is being conducted;
- take part in discussions and share experience so that others benefit and learn, which in turn enriches individuals as well; and
- pay attention when administrative arrangements are explained to them.

6. Introduction of participants

Participants are requested to introduce themselves.

7. Training slides

Training slides on this session are given in **Annex 2** (slides 1 – 20).

Module I Introduction to Good agricultural practices (GAP)

Session 1 Background to food safety and introduction to GAP

Session time: 45 minutes

1. Session objectives

The objectives of this session are to:

- explain the background and importance of food safety so that participants understand the role of GAP; and
- introduce the concept of GAP in relation to food safety, produce quality, environmental sustainability and socially acceptable practices.

2. Contents

- Introduction – globalization and its influence on food safety
- Food safety and food safety concerns
- Food safety approaches – including preventative risk-based approach on food safety in the food chain
- Standards, Sanitary and Phytosanitary/Technical Barriers to Trade (SPS/TBT) agreements and Codex
- Introduction to GAP
- Some FAO regional publications on GAP and related areas.

3. How it all started – globalization

With globalization consumers increasingly demand a greater variety of foods, which has led to the creation of a global market and the transboundary movement of food across countries. With such a global movement of food there is a high potential for the spread of contaminants and diseases that have entered the food chain leading to greater risks to human health (food safety and nutritional status), increased food losses and wastes, reduced national and international market access and adverse economic impacts in terms of product destruction, market losses, health care, etc. In such a scenario, food quality and safety have become even more important and governments having recognized their roles in protecting the health and safety of their populations are imposing increasingly stringent requirements relating to pesticide residues, contaminants, microbiological parameters, pests, diseases, as well as hygiene controls.

4. Food safety and food safety concerns

In the case of fresh fruits and vegetables, it is important that there is no harm or adverse health effects, including physical injury, as a result of consuming these foods in their fresh state as they are often eaten raw. A snapshot of quality in the region reflects that major food safety concerns generally relate to residues and contaminants, plants and animal pests and diseases, pathogens and spoilage micro-organisms, physical contaminants, technology issues such as irradiation or GMOs, persistent organic pollutants, food allergens, labeling and claims related issues such as an incorrect “best before” date and fraud.

With the rapidly changing world and varying influences such as increasing population, scientific advances, new technologies, changing agricultural practices, changing hazards such as more resistant hazards, and changes in lifestyles worldwide, there is a greater need to investigate and address the increasing potential for food safety incidents. To elaborate on

the growing importance of quality and safety in fruits and vegetables, one could find a host of specific recent examples with respect to horticulture, some of which are given as examples in the slides.

An exercise undertaken during a FAO/WHO regional workshop on the “Use of science throughout the food chain for safe foods” conducted in Bali in 2010 resulted in the mapping of risk factors in the foods of participating countries from ASEAN and SAARC. A range of risks were identified across countries and in the case of fresh and processed horticulture products, pesticide residues were identified as the most common risk factor, others being food additives, heavy metals, aflatoxins. Through the process of risk categorization undertaken by established mechanisms (a published document is available on this topic for the ASEAN countries) in the fruits and vegetables sector, farming is categorized as medium risk whereas retailers are categorized as low risk. A similar risk categorization module as for ASEAN countries has been developed in Bangladesh also.

5. Food safety approaches

Greater awareness of food safety by consumers has led them to demand safe food. At the same time, regulators have recognized their responsibility for ensuring that their citizens are provided with safe food by imposing regulations on food safety to cover both domestically produced and imported food (processed and fresh produce). To address these concerns of the consumer, certain approaches have been recognized. Emphasis on the food chain approach is important as food safety hazards can arise at various stages of the food chain and need to be prevented or eliminated at each stage. The preventative risk-based approach is recommended. This aims at implementing practices that prevent the entry of hazards into the food chain, as once the hazards enter the food chain it may be difficult to remove them. It is important therefore to implement GAP, Good Manufacturing Practices (GMP), the Hazard Analysis and Critical Control Point (HACCP) approach and the Food Safety Management Systems (FSMS). These basic good practices are the foundation of food safety across the food chain. It is also important to recognize that each and every actor in the food chain is responsible for the specific aspect or activity under his/her control, starting with the farmer who being at the first stage of the food chain has responsibility for implementing GAP, including maintaining records accurately. Processors are responsible for ensuring the production of safe food, engaging in proactive dialogue with regulatory bodies to agree on standards and ensuring efficient and effective integration of industry and official food control systems, and upgrading their facilities to maintain hygiene, design the system, implement it, including maintaining documents and records. The handlers, including transporters, storage operators, agents or consolidators have responsibility for maintaining the conditions necessary for ensuring safety and suitability. The government has a major role in both creating an enabling environment (scientific, technical, financial, infrastructure, regulatory) favourable to compliance by stakeholders and ensuring implementation of regulations by different actors in the areas under their control. Finally, consumers are very important as they need to demand a safe product as well as follow directions for storage, use and pay attention to the “best before” date on the product label. Therefore to achieve food safety, it is absolutely essential that all stakeholders perform their respective roles.

6. Standards, SPS/TBT agreements and Codex Alimentarius Commission

International standards and quality have played an important role in the protection of health and safety of consumers and the facilitation of international trade. The establishment of the World Trade Organization (WTO) in 1995 and the signing of non-tariff agreements, led to the dismantling of barriers to the free flow of trade and opportunities for all countries to benefit from greater access to world markets. One of the objectives of WTO is protection of the environment, public health, animal health and plant health. However, to prevent indiscriminate use of standards by governments, WTO laid down rules and disciplines in terms of the non-tariff agreements, namely, the Sanitary and Phytosanitary (SPS) Measures and the Technical Barriers to Trade (TBT) agreements. SPS and TBT came into force in

1995. The SPS Agreement emphasizes the health and safety aspects whereas the TBT Agreement emphasizes the quality aspects. Both agreements generally permit member countries to impose measures to protect the health and safety of their populations, ensure the quality of the products, or preserve the integrity of their environments but according to certain rules so that the measures do not cause unnecessary obstacles to trade.

As mentioned above, these agreements, although permitting countries to impose measures, standards and regulations to protect their populations and ensure fair trade, require certain rules and disciplines to be maintained so that standards, measures and regulations do not create unnecessary barriers to trade. Some of the aspects covered include those that should:

- be applied on a “most favoured nation” (MFN) basis to imports from all sources (MFN Principle);
- not extend to imported products treatment that is less favourable than that extended to domestically produced products (National Treatment Principle);
- not be formulated and applied in a manner to cause unnecessary obstacles to trade;
- be based on scientific information and evidence;
- be based on international standards, and countries should participate fully, within the limits of their resources, in the preparation of international standards;
- follow the Code of Good Practice for standards formulation;
- implement the provision of transparency whereby information is readily available and disseminated;
- apply the concept of special and differential treatment to developing countries; and
- provide technical assistance to other members, especially developing country members.

In the case of the SPS Agreement, some differences and additional aspects are provided for:

- where higher standards are applied, these should be based on risk assessment;
- discriminatory basis is possible in the case of differences in climate, incidence of pests and disease, etc.;
- the Agreement allows SPS measures to be adopted on a provisional basis as a precautionary step, even if scientific evidence is insufficient, subject to various conditions; and
- the Agreement allows the acceptance of SPS measures as equivalent, even if these differ from the importing country but achieve the same level of SPS protection.

The SPS Agreement further requires that countries should base their standards on international Codex standards for human health, World Organisation for Animal Health (OIE) standards for animal health, and International Plant Protection Convention (IPPC) standards for plant health.

In the area of food, the TBT agreement applies to issues other than food safety such as nutritional claims and labelling requirements.

Thus the role of the Codex Alimentarius Commission (CAC) is very significant. The CAC or Codex was established in 1963 as a joint FAO/WHO intergovernmental body. It currently has a membership of 185 countries and the European Commission (EC), and is the single reference point for food safety related issues. Codex operates through a committee structure and has various horizontal and commodity committees. In the area of fruits and vegetables there are two commodity committees, namely the Codex Committee on Fresh Fruits and Vegetables (CCFFV) and the Codex Committee on Processed Fruits and Vegetables (CCPFV). The committees have brought out various standards, guidelines, and recommended codes of practices for fresh fruits and vegetables. A Special Publication titled Fresh fruits and vegetables (first edition) was published in 2007 and is a compilation of 27 standards on fresh fruits and vegetables. In addition, standards, including maximum residue

levels (MRLs), guidelines and codes of practices for fresh fruits and vegetables have also been published.

7. Good Agricultural Practices (GAP)

GAP is one of the most important contributors to the preventative practices mentioned earlier and ensures that on-farm practices result in safe produce reaching the farm gate. GAP is a practice that needs to be applied on the farm to ensure food safety during the pre-production, production, harvest and post-harvest stages. In many cases, such practices also help to protect the environment and safety of the workers. In other words GAP is a systematic approach that aims at applying available knowledge to address environmental, economic and social sustainability dimensions of on-farm production and post-production processes, resulting in safe and quality food and non-food agricultural products. In recent times, importing countries/ buyers have begun to seek assurance of robust preventative measures in production. Since the buyers/domestic supermarkets cannot verify compliance individually, certification plays a very important role.

At farm level, the scope covers both the farm and the packhouse. The focus at farm level relates to Section III – Primary Production, of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969) and includes:

- environmental hygiene – related to the soil, water, waste disposal etc.;
- hygienic production – related to fertigation and pesticide spray schedules, irrigation schedule, planting material, storage and handling of agro- and non-agro chemicals etc.;
- handling, storage and transportation – related to practices essential to maintain food safety and quality during handling, storage and transportation; and
- cleaning, maintenance and personal hygiene – related to cleaning of packhouse/storage premises, maintenance of fertigation and pesticide equipment and personal hygiene.

The focus at the packhouse level relates to Sections IV, V, VI VII, VIII, IX and X of the Codex Code of Practice namely:

- design of packhouse – related to uniform flow of produce without backtracking to cross contamination;
- control of operations – related to control of post-harvest treatment and handling;
- maintenance and sanitation – related to maintenance and sanitation of the packhouse, implements and equipment used in the packhouse etc.;
- personal hygiene – related to personal hygiene practices to be followed by those working in the packhouse;
- transportation – related to practices to be followed to ensure produce is safe during transportation;
- product information – related to instructions on the label of packed produce such as “best before” date, storage conditions; and
- training – related to training of personnel working in the packhouse to follow the above-mentioned practices.

8. Some FAO regional publications on GAP and related areas

Some important FAO regional publications related to this subject are shown in the training slides.

9. Training slides

The training slides on this session are given in **Annex 2** (slides 21 – 48).

Session 2 Different GAP standards – GLOBALG.A.P. and other GAPs

Session time: 30 minutes

1. Session objectives

The objectives of this session are to:

- learn about GlobalG.A.P. and other GAP standards at global level; and
- understand the structure of the GAP standard and the scheme for SAARC countries.

2. Contents

- i) GAP global scenario, including GlobalG.A.P. standard and GAP in some of the ASEAN countries
- ii) GAP in SARRC countries – the standard and the scheme.

3. GAP – Global scenario

GAP are "practices that address environmental, economic and social sustainability for on-farm processes, and result in safe and quality food and non-food agricultural products".

The four “pillars” of GAP, namely food safety and quality, economic viability, environmental sustainability and social acceptability are included in most private and public sector standards, but the scope that they actually cover varies widely.

The concept of GAP may serve as a reference tool for deciding, at each step in the production process, the practices and/or outcomes that are environmentally sustainable and socially acceptable. The implementation of GAP should therefore contribute to sustainable agriculture and rural development.

Public authorities and/or the private sector in many countries have developed their own set of GAP standards. Many of the countries are making these practices and standards mandatory as is the case in Thailand, whereas in others it is voluntary. In some countries the retail chains are also individually or as a group demanding these good practices and various GAP standards for safety of their customers and their image, for example TESCO Natures Choice, LEAF (Linking Environment And Farming, UK). These would be applicable to all their fresh produce suppliers whether domestic or international. Compliance with GAP is verified through a certification process carried out by the governmental sector or by private agencies.

GLOBALG.A.P.

EUREPG.A.P Fruits and Vegetables commenced as a private sector standard developed in 1997 by European supermarket chains and their major suppliers, representing all stages of the supply chain in the fruit and vegetable sector in Europe. It has since developed into a privately managed on-farm accreditation scheme that seeks to provide a global verification framework for fruits and vegetables based on the implementation of GAP. The name of EUREPG.A.P. was changed to GLOBALG.A.P. in September 2007 to reflect its increasingly global scope. GLOBALG.A.P. is a private sector body that sets voluntary certification standards and procedures for good agricultural practices. It aims to increase consumers' confidence in food safety by developing good agricultural practices to be adopted by producers. The focus of GLOBALG.A.P. is on food safety and traceability, although it also includes some requirements on worker safety, health and welfare, and conservation of the

environment. GLOBALG.A.P. is a pre-farm gate standard, which means that the certificate covers the process of the certified product from sowing of the seed until it leaves the farm.

GLOBALG.A.P. has so far developed GAP standards for fruits and vegetables, and other products such as combinable crops, flowers and ornamental plants, green coffee, tea, pigs, poultry, cattle and sheep, dairy and aquaculture (salmon). Other products are likely to be included later. In this training course, the Integrated Farm Assurance Standard Version 5 is described. Version 5 (V5) is effective from 1 July 2015.

Currently there are more than 150 000 farms in over 123 countries implementing the GLOBALG.A.P standard and more than 140 approved certification bodies around the world are managing these certifications.

ASEANGAP

The ASEAN Secretariat developed the ASEANGAP in 2006 with assistance from member countries as a standard for GAP to enhance the harmonization of national GAP programmes within the ASEAN region, enhance the safety of fruit and vegetables for consumers, and ensure the sustainability of natural resources and facilitate the trade of fruit and vegetables regionally and internationally. The ASEANGAP is intended to enhance harmonization of product standards and facilitate trade as there are great opportunities for certified producers to enhance their exports of fresh fruits and vegetables to other ASEAN countries. For the less developed countries of the region, there is an opportunity to use ASEANGAP as a benchmark to develop national GAP as the ASEANGAP includes implementation guidelines and training materials as well as codes of recommended practices. ASEANGAP is a voluntary standard. The standard regulates the procedures of planting, care, harvesting and post-harvest operations including packaging, but does not regulate for sprouts and fresh cut produce. The standard applies only for production processes and is not used to certify organic products or products free from genetically modified organisms (GMOs). There are four modules in the standard, namely food safety, environmental management, workers' health, safety and welfare and produce quality.

National GAP standards in the ASEAN region

Some countries in the ASEAN region have adopted ASEANGAP as their national GAP standard and are also implementing certification schemes. In certain countries government departments are operating these schemes whereas in others it is the private sector that operates the scheme or certification system. Some countries have made GAP implementation mandatory whereas others are still implementing it on a voluntary basis. The details about GAP in various countries of ASEAN are given below:

Brunei

Brunei GAP was launched in April 2014 under the Horticulture Farm Accreditation Scheme by the government.

Cambodia

The National GAP Standard was approved by the Ministry of Agriculture, Forestry and Fisheries on 10 March 2010. The General Directorate of Agriculture is responsible for developing implementation and certification mechanisms for GAP. The Crop Product Quality and Safety Improvement Office under the Plant Protection, Sanitary and Phyto-sanitary Division is responsible for registration, certification, inspection, and supervision of GAP farms.

Indonesia

IndoGAP and its certification, SiSakti, was launched in 2004 by the government. The Indonesian GAP certification system has 16 elements, which are based on GLOBALG.A.P. and provides for a step-by-step movement towards GLOBALG.A.P. The agricultural practices in GAP are classified as “must”, “highly recommended” or “recommended”. SiSakti is a certification system for quality and food safety assurance of agricultural products that can be applied step-by-step through three-level Prima certification: Prima III, II and I according to the achievement level on GAP. These levels are Good Pesticide Practices, Good Agricultural Practices and ASEANGAP/GLOBALG.A.P. In this way, Indonesian vegetable growers can, step-by-step, grow towards the ASEANGAP/GLOBALG.A.P. The first level will be certified by private certification institutes and the next two levels by the inspection services of the Indonesian government.

Lao PDR

Lao GAP Fruits and Vegetables was launched in May 2014 by the Ministry of Agriculture and Forestry. ASEANGAP, including its four modules, was adopted as the national Lao GAP.

The Standards Division of the Department of Agriculture has the responsibility to promote and institutionalize GAP in the country.

Malaysia

The *Skim Amalan Ladang Baik* or Malaysian Farm Accreditation Scheme (SALM) was developed in 2003 to provide certification to farmers that use GAP to produce safe and quality produce, prevent harm to the environment and ensure their workers' health, safety and welfare. MyGAP, the Malaysian Good Agricultural Practices Scheme, was launched on 28 August 2013 in place of SALM certification. It is a comprehensive scheme covering agriculture, aquaculture and the livestock sector. The requirements for GAP have been classified as “major must”, or “minor must” or “encouraged”. In order to achieve certification of GAP producers have to meet:

- all of the 29 “major must” requirements;
- 95 percent of the “minor must” requirements; and
- 50 percent of the “encouraged” requirements.

Philippines

GAP for fruits and vegetables farming in the Philippines was launched in 2006 and is known as PhilGAP. The objectives are to increase market access in both local and foreign markets, empower farmers to respond to consumer demand for food safety and quality, and facilitate adoption of sustainable practices. The programme has six components – farm location, farm structure, farm environment, farm maintenance, farm practices and farm management.

Singapore

GAP in Singapore is called GAP – Vegetable Farming (GAP-VF). It is a voluntary scheme that was launched in 2004 and is aimed at intensive vegetable farming. The Agri-Food and Veterinary Authority of Singapore manages certification. The GAP-VF certification scheme focuses on food safety and has six components, namely farm location, farm structure, farm environment, farm maintenance, farm practices/methods/techniques and farm management. The GAP-VF logo is promoted to consumers to provide confidence that produce grown by certified farms is traceable and safe to eat.

Thailand

The Q GAP Program was launched in 2003 by the Department of Agriculture with the purpose of ensuring that food crops produced in Thailand are safe, wholesome and meet the required standards. Q GAP has initially three levels of production processes, namely i) safe products; ii) safe and pest-free products; and iii) safe, pest-free and quality products. The Thai Department of Agriculture, to help guide farmers, has developed 28 crop manuals that describe practices required to improve yield, quality and food safety. The manuals include varieties or planting material details, cultivation, fertilization, irrigation, crop sanitation, crop protection, safe pesticide use, harvesting, transportation and record keeping. The Q GAP mark is promoted to supply chain customers and to customers to provide confidence that produce grown by certified farms is safe to eat.

The Agricultural Standards Act, 2008 contains a legal framework for establishment, certification and control of GAP standards for farm produce. The mandatory standards are implemented in the areas of food safety and public concern. The accreditation and certification for agricultural standards are also regulated by the Agricultural Standards Act 2008 and other relevant laws. The Q GAP being implemented before enactment of the law shall be transited and enforced by this law.

Viet Nam

The Ministry of Agriculture and Rural Development, Government of Viet Nam decided to drive the development of a national GAP system. The Department of Science and Technology (DST) and the Vietnamese Academy of Agricultural Sciences (VAAS) were nominated to develop a national GAP system for Viet Nam. VietGAP was officially released on 28 January 2008. VietGAP is based on the ASEANGAP model and also designed to meet the specific needs of the Vietnamese fresh fruit and vegetables industry. VietGAP consists of 12 sections, namely site assessment and selection, planting material, soil and substrates, fertilizers and soil additives, water, chemicals, harvesting and handling produce, waste management and treatment, workers and training, documents, records, traceability and recall, internal audit and complaint handling.

GAP in SAARC countries

FAO through a Regional Technical Cooperation Programme for the Development of Standards and a Scheme for Good Agricultural Practices Implementation and Certification in Countries of SAARC - TCP/RAS/3501 supported countries in the SAARC region to establish a system for GAP in the horticulture sector, including the development of standards and their implementation.

The objectives of the project were to ensure production of safe fruits and vegetables for domestic markets, facilitate regional trade through implementation of common GAP standards in the region, and ensure acceptability of fruits and vegetables in global markets.

These objectives can be achieved through the development of a credible GAP system consisting of a standard or requirements and a system for certification following international accreditation criteria.

A scheme for implementation of GAP has been developed under the project and the structure of this is as follows:

- ❑ **Part 1 Standard for Good Agricultural Practice**
 - Requirements in relation to food safety, quality, environmental management and workers health, safety and welfare
- ❑ **Part II Establishing a national implementation system for GAP in a country**
 - Section 1 – Options and structure for implementing GAP in a country
 - Section 2 – Guidance for establishing a scheme owner
 - Section 3 – Rules for use of the certification mark
- ❑ **Part III Certification and accreditation for GAP**
 - Section 1 – Certification criteria (detailing requirements for on-farm production of fruits and vegetables based on standard and certification body requirements)
 - Section 2 – Certification process
 - Section 3 – Requirements for certification bodies
 - Section 4 – Requirements for accreditation bodies for GAP.

In addition, five countries namely Bangladesh, Bhutan, Maldives, Nepal and Sri Lanka were selected as pilot countries and supported to adopt GAP standards and establish a certification structure in line with international accreditation requirements.

4. Training slides

The training slides on this session are given in **Annex 2** (slides 49 – 77).

Module II The GAP standards/requirements

Session 3 An overview of the GAP standard

Session time: 30 minutes

1. Session objectives

The objectives of this session are to understand:

- the scope of the GAP standard;
- overall structure of the GAP standard; and
- the GAP standard.

2. Contents

- The GAP standard and its purpose
- Scope of the standard
- Structure of the standard
- The modules, namely the food safety module, the environmental management module, the workers' health, safety and welfare module, the produce quality module, and the general requirements module
- Integration of modules
- Conformity criteria.

3. Introduction

The standard for GAP on fruits and vegetables may be a voluntary or mandatory standard for good agricultural practice for production and harvesting of fresh fruit and vegetables (produce) and for post-harvest handling on-farm and in locations where produce is prepared and packed for sale.

The objective of Good Agricultural Practices (GAP) is to facilitate production of fruits and vegetables ensuring food safety, quality, environmental sustainability and protection of the health, safety and welfare of workers.

The implementation of GAP is an assurance to the world that fresh fruits and vegetables being produced in the country are safe for human consumption, that production is done with high regard for the environment and ensuring the protection of the health, safety and welfare of workers.

4. Scope

This standard specifies the requirements of GAP with respect to all types of fresh fruits and vegetables covering activities such as production, harvesting and post-harvest handling of farm produce and packhouse operations when produce is packed for sale either for direct consumption or for further processing by the food industry.

The standard may be used for both conventional production systems where produce are grown in the soil and hydroponic systems where produce are grown in inert media. Production may occur in the open or in a protected environment.

The exclusions in the standard are high-risk products such as sprouts and minimally processed produce such as cut fruits and vegetables. The standard also does not provide any basis for certification of either organic products or GMO free products, but these products can be certified as GAP compliant if GAP requirements are implemented.

5. Documents referred to

When preparing this standard, references have been made and assistance drawn from the following documents:

- Good Agricultural Practices (GAP) for production of fresh fruits and vegetables in the ASEAN region. ASEAN Secretariat 2006.
- FAO training manual, implementing ASEANGAP in the fruit and vegetable sector: its accreditation and certification (FAORAP Publication 2014/02).
- Recommended international code of practice: Codex general principles of food hygiene (CAC/RCP 1 – 1969).
- Code of hygienic practice for fresh fruits and vegetables (CAC/RCP 53 – 2003).
- GLOBALG.A.P. – Control points and compliance criteria, fruit and vegetables.

When developing GAP standards, countries need to consider their own specific requirements and regulations with regard to the environment, labour (workers), air, water, wildlife protection, farming practices including chemical inputs (fertilizers, manures, plant protection chemicals) and infrastructure.

6. Structure of the standard

The standard specifies the requirements to be met with respect to Good Agricultural Practices (GAP) on the farms for production of fruits and vegetables in the form of five modules, namely:

- Module 1: Food safety module (FSM)
- Module 2: Environmental management module (EMM)
- Module 3: Workers' health, safety and welfare module (WHSM)
- Module 4: Produce quality module (PQM)
- Module 5: General requirements including group controls module (GRM).

The first four are standalone modules and may be implemented depending upon the objective to be met, singularly or in combination with others, enabling progressive implementation of GAP module-by-module based on individual country/producer priorities. A fifth module is on general requirements that need to be met by farms (single or as a group) in addition to the four modules. It also contains criteria for the internal control system for farms that seek to apply for recognition as a group (group certification). This section also covers requirements in relation to group controls. Each module collates best practices in relevant areas in the form of elements. Each element covers one or more than one good agricultural practice. Each module is designed as a complete section enumerating criteria/requirements for control that should be implemented on a farm, whether a single unit or on a group of farms coming under common internal management.

The criteria and levels of controls required with respect to every element of each module have also been enumerated.

The contents of each module are as follows:

Food safety module – The purpose of this module is to minimize harmful effects of production and post-production practices on the safety of the produce. The GAP for controlling food safety hazards are grouped into 11 elements and include 88 good agricultural practices. The elements are: site history and management; planting material (propagation material); genetically modified organisms (GMOs); fertilizer and soil additives (plant nutrient management and fertilizer use); water (irrigation/fertigation); chemicals (plant protection products, other agro- and non-agrochemicals); harvesting and handling produce; traceability and recall; training; documents and records; and review of practices.

Environmental management module – This module deals with Good Agricultural Practices (GAP) to be implemented in order to control environmental hazards during production and post-production practices. When addressing these, consideration should be given to the national environmental policy. There are 13 elements and include 59 good agricultural practices for controlling environmental hazards. The elements are: site history and management; planting material; soil and substrates (substrate management); fertilizer and soil additives; water; chemicals (plant protection products and other inputs); waste management; energy efficiency; biodiversity; air/noise; training; documents and records; and review of practices.

Workers' health, safety and welfare module – Any person who works on the farm including adult family members, permanent workers, temporary/casual/sub-contracted labourers is a worker. Considering that farming involves many tasks, workers are often exposed to many types of hazards. This module takes into account the role of farm workers and gives importance to their health as this has a direct effect on the loss of production and earnings of the farm. This module has seven elements and is composed of 33 practices. The elements are chemicals; working conditions; personal hygiene; worker welfare; training; documents and records; and review of practices.

Produce quality module – The module is grouped into ten elements covering 26 good agricultural practices to minimize harmful effects of production and production practices to address produce quality. The elements are a quality plan; planting material; fertilizer and soil additives; water; chemicals; harvesting and handling produce; traceability and recall system; training; documents and records; and review of practices.

The following table gives a summary of the GAP standard and its various modules:

Standard requirement (elements)	Food safety FSM	Environmental management EMM	Workers' health safety and welfare WHSM	Produce quality PQM
Site history and management	X	X		
Soils and substrates (substrate management)		X		
Quality plan				X
Planting material (propagation material)	X	X		X
Genetically modified organisms (GMOs)	X			
Fertilizers and soil additives	X	X		X
Water	X	X		X
Chemicals (plant protection product and other inputs)	X	X	X	X
Harvesting and handling produce	X			X
Traceability and recall system	X			X
Waste management		X		
Energy efficiency		X		
Biodiversity		X		
Air/noise		X		
Working conditions			X	
Personal hygiene			X	
Worker welfare			X	
Training	X	X	X	X
Documents and records	X	X	X	X
Review of practices	X	X	X	X

7. Compliance/verification criteria

Each module collates best practices in relevant areas in the form of clauses and sub-clauses. Each clause addresses one or more than one good agricultural practices. It is important to categorize each requirement/ criteria into levels of control, whether for checking by the producer or producer group with internal management or for certification by an independent certification body or for verification by the government. The criteria/requirements stipulated in the standard are also known as control points. The producer (individual/group) shall be required to comply with the control points. The criteria/requirements have been categorized, based on their importance, as “critical”, “major” or “minor” as explained below:

- **Critical** – those that are required to maintain the integrity of the produce and failing to adhere to these requirements may result in a serious breach in food safety and product integrity.
- **Major** – those that are mandatory and must be followed.
- **Minor** – those that are important but not essential, depending upon produce category.

The compliance levels recommended are as follows:

Critical – 100% compliance with all applicable requirements

Major – 90% compliance with all applicable requirements

Minor – 50% compliance with all applicable requirements.

8. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 78 – 95).

Session 4 Food safety module

Session time: 45 minutes

1. Session objectives

The objectives of this session are to understand:

- the requirements of the food safety module of the GAP standard for fruits and vegetables and details of each element;
- the hazards and risk assessment related to various elements of the food safety module and how to assess these; and
- various Good Agricultural Practices (GAP) that help minimize hazards in the production of fruits and vegetables.

2. Contents

- Food safety hazards – biological, chemical and physical
- Elements of the food safety module
- Good agricultural practices with respect to each element.

3. Food safety hazards

Fresh fruits and vegetables can be contaminated through direct contact of produce with the hazards or indirectly through the produce coming into contact with hazards present in contaminated soil, water, people, equipment, materials, fertilizers and soil additives, packing material, transportation vehicles and others.

A **food safety hazard** is any chemical, biological, or physical agent or condition/property in the fruits and vegetables that can become an unacceptable health risk to consumers when consuming the fruits and vegetables as intended.

Good Agricultural Practices need to be adopted right from preparation of the site, selecting planting material and during production, harvesting and post-harvest handling of fresh produce (trimming, grading, packing, transport etc.) and are important to minimize various food safety hazards in the product. They control unacceptable health risks to the consumer. These practices will also enable farmers to gain access to markets within the country and abroad.

Chemical hazards

Chemicals in fresh fruits and vegetables may be introduced during production, harvesting and post-harvest handling, storage and transport of fresh produce or may occur naturally. Types of chemical hazards include:

- agrochemical residues (pesticides, herbicides, fungicides, etc.) in produce that exceed the permitted Maximum Residue Limits (MRL);
- non-agrochemical contamination – for example, fuels, lubricants (oil and grease), detergents, sanitizers;
- heavy metals in excess of maximum permitted levels (ML);
- naturally occurring plant toxins; and
- allergenic agents – allergens.

Biological hazards

Most of the biological hazards are micro-organisms or microbes such as bacteria, fungi, algae and viruses that can only be seen through a microscope or through an electron microscope (virus). These are found everywhere in the environment. Fruit and vegetables typically contain a diverse mixture of a large number of micro-organisms. Micro-organisms can be pathogenic or non-pathogenic. Pathogenic micro-organisms are those that affect consumer health and cause illness either by the micro-organism itself growing inside the human (infection) or by toxins produced by the micro-organism. Pathogenic micro-organisms are mostly found on the outside of fresh fruit and vegetables, but some can enter the plant tissue. The common types of pathogenic micro-organisms associated with fresh fruits and vegetables are:

- bacteria such as *Escherichia coli*, *Salmonella*, *Shigella*, *Listeria monocytogenes*;
- fungi such as *Penicillium*, *Fusarium*, *Rhizopus*;
- viruses such as *Hepatitis A*, *Rota virus*, *Norwalk* or *Norwalk-like virus*; and
- parasites such as *Entamoeba*, cysts of *Giardia*, *Cryptosporidium*, *Cyclospora*.

Some micro-organisms can cause spoilage by producing undesirable quality characteristics such as rotting and bad odour and flavour. These do not generally affect the health of consumers but are important for the quality parameters of the product.

Sources of biological contamination can result from poor personal hygiene practices, contact with contaminated soil or untreated animal and human wastes, faeces, contaminated water used for handling produce.

Physical hazards

Physical hazards are foreign objects that can cause illness or injury to consumers. The foreign objects can come from:

- the environment – soil, stones, sticks, weed seeds;
- equipment, containers, buildings and structures – glass, wood, metal pieces, plastic, paint flakes, cement pieces, other sharp objects;
- human handling of produce – jewellery, hair clips, pens and other personal items; and
- packaging material – plastics, cardboard, paper, foil used for packaging.

5. Module elements

The GAP for controlling food safety hazards are grouped into eleven elements and 88 practices as given below. The elements are:

- Site history and management
- Planting material (propagation material)
- Genetically modified organisms (GMOs)
- Fertilizers and soil additives (plant nutrient management and fertilizer use)
- Water (irrigation/ fertigation)
- Chemicals (plant protection products, other agro and non-agrochemicals)
- Harvesting and handling produce covering equipment, containers and materials, buildings and structures, cleaning and sanitation, animal and pest control, personal hygiene, produce treatment, storage and transport
- Traceability and recall
- Training
- Documents and records
- Review of practices.

Additionally, there are some optional requirements in relation to fertilizers and soil additives (plant nutrient management and fertilizer use) and chemicals (plant protection products or other agro and non-agrochemicals).

Details are available in Volume 1 of this publication under Part 1 GAP standards.

6. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 96 – 125).

Session 5 Environmental management module

Session time: 30 minutes

1. Session objectives

The objectives of this session are to understand the:

- requirements of the environmental management module of the GAP standard for fruits and vegetables;
- hazards and risk assessment related to various elements of the environmental management module and how to assess these; and
- various Good Agricultural Practices (GAP) to control these hazards.

2. Contents

- Environmental hazards – category and types
- Elements of the environment management module
- Good Agricultural Practices with regard to each element.

3. Environmental hazards and steps for controlling these

Environmental hazards are adverse impacts that occur to the environment on and off the property as a result of production, harvesting and post-harvest handling of fruits and vegetables. Although there are many common hazards associated with farms and packing sheds, every property is different. The particular circumstances of each property need to be considered when managing potential environmental hazards.

The list below contains potential environmental hazards grouped into seven categories:

- land and soil – soil erosion, poor soil structure, salinity, soil acidity and alkalinity, sodicity (high sodium levels);
- water – depletion of water resources, poor water quality;
- chemicals – contamination of environment from inappropriate storage, application and disposal of chemicals, spray drift;
- nutrients – degradation of soil and water;
- waste – degradation of soil, water and air, depletion of natural resources;
- air – dust, smoke, greenhouse gases, noise, odour; and
- energy – depletion of natural resources.

The steps to controlling environmental hazards are as follows:

- Identify the hazards – what can happen to the environment on and off the property if something goes wrong?
- Assess the risk – what is the likelihood and consequence of the hazard occurring on environment?
- Control the hazard – what good agricultural practices are required to prevent or minimize the risk of significant hazards?
- Monitor and review hazards – are the good agricultural practices working and have there been any changes that are likely to introduce new hazards?

4. Module elements

The Good Agricultural Practices (GAP) to be implemented in order to minimize harmful effects of production and production practices on the environment have been grouped into 13

elements covering 42 good agricultural practices. While addressing these, consideration shall be given to national environmental policy of the country. The elements are as follows:

- Site history and management
- Planting material
- Soil and substrates (substrate management)
- Fertilizers and soil additives
- Water
- Chemicals (plant protection products and other inputs)
- Waste management
- Energy efficiency
- Biodiversity
- Air/Noise
- Training
- Documents and records
- Review of practices.

Additionally, there are some optional requirements in relation to site history and management and soil and substrates (substrate management).

Details are available in Volume 1 of this publication under Part 1 GAP standards.

5. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 126 – 145).

Session 6 Workers' health, safety and welfare module

Session time: 30 minutes

1. Session objectives

To understand:

- the requirements of the workers' health, safety and welfare module of the GAP standard for fruits and vegetables and details of each element;
- the hazards and risk assessment related to various elements of the workers' health, safety and welfare module and how to assess these; and
- various Good Agricultural Practices (GAP) that help minimize hazards.

2. Contents

- Workers' health, safety and welfare hazards – various types and causes
- Elements of the workers' health, safety and welfare module
- Good Agricultural Practices with regard to each element.

3. Hazards to workers' health, safety and welfare and steps for controlling these

Any person who works on the farm including adult family members, permanent, temporary/casual/sub-contracted labour is a worker. Every year, thousands of such workers are injured and/or fall ill and some die in farming accidents. There are several types of hazards that affect those who work and live on the farm. Injury and illness are a large cost to the health and well-being of farmers and workers. Therefore, reasonable care of their health and safety need to be taken.

Accidents are preventable. There are several steps that can be taken to protect workers from injury and illness, making them aware of hazards to health, safety and welfare. Although there will be common hazards on farms engaged in agriculture and/or horticulture and packing sheds, every farm or packing shed is different. Therefore, particular circumstances and the environment of the farm or packing shed need to be considered when managing hazards. The most common cause of injury and illness is associated with the use of machinery, equipment, vehicles and chemicals.

The common hazards that occur during operations involving production, harvesting, handling, packing, storing and transporting of fresh produce are given in the following table.

Types of hazards	Causes of hazards (examples only)
Biological	Contamination of water, equipment, containers, materials, produce and worker facilities with micro-organisms that cause human illness, infectious diseases from animals and pests (e.g. leptospirosis)
Chemical	Inappropriate storage, handling and application of pesticides, handling of hazardous substances
Electrical	Low overhead power lines, faulty equipment and electrical leads and sockets
Mechanical	Exposed moving parts of machinery, equipment and vehicles, working at heights, heavy manual lifting
Noise	Loud machinery, equipment and vehicles
Solar radiation	Excessive exposure to sun and heat
Stress and fatigue	Long working hours, continuous work without rest periods
Welfare	Exploitation of age, gender and race

The steps to managing the risks of hazards to workers' health, safety and welfare are as follows:

- Identify the hazards – What can happen to workers' health, safety and welfare if something goes wrong?
- Assess the risk – What is the likelihood and consequence of the hazard occurring?
- Control the hazard – What good agricultural practices are required to prevent or minimize the risk of injury and illness?
- Monitor and review hazards – Are the good agricultural practices working and have there been any changes that introduce new hazards?

4. Module elements

This module addresses the issues of workers' health, safety and welfare. The types of hazards encountered by workers include mechanical, chemical, biological, electrical, solar radiation, noise, stress and fatigue and welfare related. The Good Agricultural Practices requirements for controlling hazards to worker health, safety and welfare are grouped into seven elements covering 29 good practices. The elements are as follows:

- Chemicals
- Working conditions
- Personal hygiene
- Worker welfare
- Training
- Documents and records
- Review of practices.

Additionally, there are some optional requirements in relation to workers' welfare.

Details are available in Volume 1 of this publication under Part 1 GAP standards.

5. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 146 – 161).

Session 7 Produce quality module

Session time: 60 minutes

1. Session objectives

The objectives of this session are to understand:

- the issues related to produce quality;
- various GAP that help minimize these issues; and
- the requirements of the produce quality module of the standard for Good Agricultural Practices (GAP) for fruits and vegetables.

2. Contents

- Various kinds of produce quality issues and hazards affecting quality and quality losses
- Elements of produce quality module
- Good Agricultural Practices with regard to each element.

3. Quality issues, produce quality hazards and quality losses

A quality hazard is any characteristic that prevents the produce from meeting the customer requirements or a government regulation. For example, the produce quality may not meet customer requirements with respect to size, colour, maturity, external appearance, flavour, or shelf-life. The produce may also not meet the quarantine regulations of an importing country because of the presence of a pest or disease or it may be incorrectly labelled. There are some basic quality characteristics that customers expect when purchasing fresh produce. These are some of the expectations:

- free of major injury, spoilage or blemish;
- not overripe, excessively soft or wilted;
- free of dirt, unacceptable chemical residues and other foreign matter;
- free of foreign odour or taste; and
- free of quarantine pests.

There are three types of quality characteristics – external appearance (for example, colour, texture, shape and size), internal quality (for example, total soluble solids, turgidity, water content) and hidden quality (for example, nutritional value, shelf life). This module focuses on aspects that affect the produce quality. Produce quality relates to characteristics such as external appearance. The producer needs to design its processes to realize Good Agricultural Practices to address produce quality.

3.1 Quality loss during production

The inherent quality of produce is determined by the production practices. Once produce has been harvested, produce quality cannot be improved. Production practices affect all types of quality characteristics.

External characteristics such as colour, size, and shape are affected by practices that impact on plant growth and crop load such as water and nutrition management, pruning and thinning. External appearance can be affected by disease infection, pest damage and mechanical injuries such as wind rub.

The internal appearance, eating quality, shelf-life and nutritional value of produce are affected by water stress, inadequate plant nutrition and excessive crop loads. GAP during production is aimed at maintaining the inherent quality of produce at the time of harvest.

3.2 Quality loss at harvest

The maturity of produce not only affects its quality at harvest but also its shelf-life. Maturity refers to a stage of development in the growth of the fruit or vegetable. Maturation continues until the start of senescence (ageing), leading to the cell death of the produce.

Deciding when produce is mature and ready for harvest can be difficult. For some crops, maturity indices have been developed to assist in the decision process. For other crops, harvesting at the correct time can be highly subjective.

The optimum maturity for harvest is when the plant has completed sufficient growth and development to ensure that produce quality and shelf life are acceptable to the consumer. Most produce start to senesce once harvested, eventually leading to cell death. If produce is harvested when it is too mature, senescence may occur before the produce reaches the consumer. If produce is harvested when it is immature, quality characteristics such as colour, size, shape, flavour and texture will be adversely affected.

3.3 Quality loss during post-harvest handling

There are many causes of quality loss after harvest. Quality loss can be a result of the normal biological processes, which can be slowed but not stopped, and can be the result of poor handling practices. Major causes of quality loss after harvest are:

- Acceleration of senescence
- Water loss
- Mechanical injuries
- Physiological disorders
- Disease infection.

4. Module elements

This module focuses on aspects that affect the produce quality. Produce quality relates to characteristics such as external appearance (colour, texture, and shape), internal quality (brix, total soluble solids, turgidity) and hidden quality (nutritional value, shelf life, etc). Producers need to design their processes incorporating Good Agricultural Practices that lead to produce quality. These are grouped into ten elements covering 54 good practices as follows.

- Quality plan
- Planting material
- Fertilizers and soil additives
- Water
- Chemicals
- Harvesting and handling produce, which includes harvesting, handling and packaging produce and storage and transport
- Traceability and recall system
- Training
- Documents and records
- Review of practices.

Additionally, there are some optional requirements in relation to chemicals and harvesting and handling produce.

Details are available in Volume 1 of this publication under Part 1 GAP standards.

5. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 162 – 185).

Session 8 General requirements module (including group controls)

Session time: **30 minutes**

1. Session objectives

The objectives of this session are to understand:

- the common criteria applicable to all four modules (namely food safety, environmental management, workers' health, safety and welfare and produce quality); and
- the additional requirements to be maintained by a group of farms for implementing their internal control systems.

2. Contents

- Common criteria applicable to the four aforementioned modules
- Criteria for internal control systems applicable for certification:
 - Section A – Farm level
 - Section B – Group level.

The term “group” refers to the producer group in this module.

3. Module

A fifth module is on general requirements that need to be met by the farm(s) (single or as group) in addition to the four modules. It also contains criteria for internal control systems for farms that seek to apply for recognition as a group or group certification. At farm level, the following criteria are applicable:

- Legal
- Visitor requirements
- Redress of complaints
- Site details
- Record keeping and internal inspection
- Calibration.

These requirements are applicable to a group of growers only if the growers form a group as a single legal entity and adopt the standard as a group. They would require to not only implement the GAP standard's requirements but also would need to have an internal control system in place. All the requirements stipulated in this arrangement are required to be written in a formal contract accompanied with policies and procedures for the operation of the group.

The basic requirements to be implemented by a group are as follows:

- Legal requirements
- Written contract
- Producer register
- Structure of organization
- Competency and training to staff

- Quality manual
- Document control
- Complaint handling
- Internal audit
- Non-compliances, corrective actions and sanctions
- Product traceability and segregation
- Withdrawal of certified product
- Common packhouse
- Agreement with buyer
- Subcontracting.

Details are available in Volume 1 of this publication under Part 1 GAP standards.

4. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 186 – 204).

Exercise 1 GAP review - questionnaire

30 minutes

SECTION 1 STATE TRUE OR FALSE

Q1 If a significant risk of chemical or biological contamination of produce has been identified, the site should not be used for production of fresh produce under any condition.

TRUE/FALSE

Q2 If planting material is produced on the farm, then the requirement is to keep records only of the planting materials.

TRUE/FALSE

Q3 While storing chemicals, liquid chemicals should be stored below powders.

TRUE/FALSE

Q4 Untreated organic material does not pose any significant risk of contaminating the produce with biological hazards.

TRUE/FALSE

Q5 If approved chemicals are used, there is no risk of contaminating either the soil or the produce.

TRUE/FALSE

Q6 A review of practices at farm level is generally done at least once a year. If the farm is doing well and there are no customer complaints, there is still a need to review practices.

TRUE/FALSE

Q7 All environmental hazards as in the case of food safety hazards also affect the health of the consumer of the produce, which makes these critical for food safety as well.

TRUE/FALSE

Q8 Good Agricultural Practices can significantly minimize the environmental hazards.

TRUE/FALSE

Q9 Water can be the cause of food safety hazards but not quality hazards.

TRUE/FALSE

Q10 Water, if contaminated, can be used for irrigation purposes but not for washing purposes.

TRUE/FALSE

- Q11 It is acceptable to use a slightly higher concentration of pesticides than those recommended so as to be doubly sure that the pests are destroyed.
TRUE/FALSE
- Q12 Workers' health, safety and welfare are the responsibility of the farm owners.
TRUE/FALSE
- Q13 It is the workers' choice whether or not they wear protective garments provided by the farm owner.
TRUE/FALSE
- Q14 Pest and domestic animals can cause illness to the farm workers.
TRUE/FALSE
- Q15 Chilling of fruits and vegetables can lead to quality hazards by causing injury to them.
TRUE/FALSE
- Q16 A quality plan is required in both food safety and produce quality modules.
TRUE/FALSE
- Q17 Bacteria causing plant disease also generally affect food safety.
TRUE/FALSE
- Q18 The produce quality module is the first module that the countries should focus on for implementation since it addresses visible parameters and produce quality is what determines the sale of fresh fruits and vegetables.
TRUE/FALSE
- Q19 Water can also lead to environmental hazards in addition to safety hazards in fruits and vegetables.
TRUE/FALSE
- Q20 GAP takes care of four types of hazards, namely those that affect food safety, those that affect the environment, those that harm the health, safety and welfare of the people working on the farm and those that affect the quality of the farm environment.
TRUE/FALSE

SECTION 2 ANSWER THE FOLLOWING QUESTIONS BRIEFLY

- Q1 List three chemical hazards that lead to adverse health effects on consumers.
- a. _____
- b. _____
- c. _____

Q2 List three good agricultural practices that will help minimize food safety hazard – pesticide residues.

a. _____

b. _____

c. _____

Q3 List one element that is unique to each module of the GAP standard.

a. _____

b. _____

c. _____

d. _____

Q4 List three agricultural practices to control environment hazards and identify the specific hazard controlled in each case.

a. _____

b. _____

c. _____

Q5 List three hazards that could lead to workers' health and safety issues.

a. _____

b. _____

c. _____

Session 9 GAP compliance criteria, control points and checklists

Session time: **30 minutes**

1. Session objectives

The objectives of this session are to understand:

- the concept of criteria/ requirements/ control points, their categorization and levels of compliance to be maintained with respect to these; and
- the use of checklists and verification of each criteria.

2. Contents

- GAP compliance/verification criteria
- Control points and their categorization
- Compliance levels
- Checklists – structure with few examples.

3. Compliance/ verification criteria

The standard specifies the requirements to be met with respect to GAP on the farms for production of fruits and vegetables in the form of four standalone modules. The modules may be implemented depending on the objective to be met, namely food safety, environmental management, workers' health, safety and welfare, and produce quality. Each module collates the best practices in relevant areas in the form of clauses and sub-clauses. Each clause addresses one or more than one good agricultural practice. The compliance/verification criteria are requirements stipulated in the standard with respect to each of the GAP that a producer either individually or a group is required to implement. It is important to categorize each requirement/criteria in terms of the levels of controls, whether checked by the producer or producer group themselves with internal management or verified by the government or whether certified by an independent body (a certification body).

4. Control points

The criteria or requirements stipulated in the standard which the producer needs to comply with are also known as control points.

5. Categorization of control points and levels of compliance

5.1 The criteria/requirements have been categorized on the basis of their importance as follows:

- **Critical** – those that are required to maintain the integrity of the produce and failing to adhere to the requirements may result in a serious breach of food safety and product integrity.
- **Major** – those that are mandatory and must be followed.
- **Minor** – those that are important but not essential depending upon the produce category.

5.2 Levels of compliance

The recommended level of compliance needed for each category of control points is as follows:

- Critical control points – 100% compliance with all applicable requirements
- Major control points – 90% compliance with all applicable requirements
- Minor control points – 50% compliance with all applicable requirements.

5.3 Checklists

The criteria referred to and the levels of controls required with respect to each of the criteria/requirements of each of the modules are given in tabular form. A table containing the checklist contains the criterion/requirement, its category and how it can be verified whether by the producer who carries out a self-assessment, the auditor or the scheme owner. The checklist also contains a column where the producer/auditor can enter comments and another column for entering the compliance status. A column is also included for comments. The column referring to compliance status is required to be filled as “Yes” or “No.”

The checklists for all four modules have been developed in the scheme documents (see volume 1 of this publication) and some examples are illustrated in the slides related to this session.

6. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 206 – 228).

Exercise 2 Checklist development

45 minutes

Group exercise

Instructions

1. Form into groups of four persons.
 2. Distribute sections among groups (food safety, environment, workers' health and safety and produce quality).
 3. Carry out as a group the exercises described under items 5 a) – d).
 4. Present to the other groups and then discuss what was presented.
 5. When carrying out a hazard analysis, rate the hazard as either critical or major or minor.
- 5a) List food safety hazards possible and identify the GAP that can help control and minimize them.
- 5b) List environmental hazards possible, elaborate the impacts, and identify the GAP that can help control and minimize them.
- 5c) List workers' health, safety and welfare issues/ hazards possible, identify their impacts on the workers and identify the GAP that can help control and minimize them.
- 5d) List produce quality hazards possible and identify the GAP that can help control and minimize these.

Hazard analysis and rating		GAP to control or minimize hazard
Sl. No.		

Module III Establishment of national implementation systems for GAP

Session 10 Options and structure for implementing GAP in a country

Session time: **30 minutes**

1. Session objectives

The objectives of this session are to understand:

- the options for implementing GAP;
- the structure for implementing GAP in a country; and
- the status and decisions needed by a country to implement GAP.

2. Contents

- International scenario
- Regulatory and voluntary options
- Structure for implementing GAP in a country
- Status and decisions needed by a country to implement GAP.

3. International scenario

International trade is governed by WTO agreements and the rules for standards and conformity assessment are laid down in the TBT/SPS agreements. The WTO agreements allow regulations on the grounds of national security, prevention of deceptive trade practices, the environment and health and safety. The regulation means standards are enforced by law which either are stated as product requirements or requires a systems approach, for example GAP/GMP/GHP/HACCP in food and GMP in drugs.

All over the world, governments are responsible for the protection of health and safety of their populations and therefore enforce standards through technical regulations. Typical examples of sectors having regulations in force are foods, drugs, electrical appliances, electronics/ IT/ telecom goods and toys. Regulations are the government's responsibility and involves a regulatory framework that can be executed only by the government.

4. Structure for implementation of GAP in a country – emerging structure

The basic players in a GAP scheme are described below:

Scheme owner – This is an organization or a body, governmental or private or non-governmental organization can be nominated by the government of the country. The scheme owner has the responsibility for implementing the GAP scheme in the country. Where the government or a regulatory body is the scheme owner, it is also known as the competent authority for the purpose.

Accreditation body (AB) – an independent body to testify to the competence of conformity assessment bodies (CABs) used in the scheme. The AB itself needs to comply with ISO 17011. It will function under the aegis of the International Accreditation Forum (IAF). Peer evaluation will be done by IAF and the AB will sign mutual recognition arrangements known as Multilateral Recognition Arrangements (MLAs) for accreditation activities according to ISO 17065 in the case of GAP.

Certification body (CB) – This is a third-party assessment body, governmental or private or non-governmental organization, recognized by the scheme owner for evaluating the producer against specified requirements of the GAP standard and the GAP scheme. The CB needs to comply with the requirements given in ISO 17065 and get accredited by an AB according to the standard. In the absence of an AB, the scheme owner may also approve a CB.

Laboratories – These are used for carrying out the testing activities for the GAP certification scheme for requirements of the producer, the CB or any interested party. The testing would relate to testing for pesticide residues, microbiology, heavy metals content, soil quality, water quality, etc. The laboratory needs to be accredited to ISO 17025 for those specific parameters.

Producers/ producer group – These are farmers and they could be a single entity or they can come together as a group or single entity to implement the requirements of the standard.

Therefore, the players for the GAP scheme, voluntary or mandatory according to the operational hierarchy will be the government, scheme owner, accreditation body, certification body, testing laboratory and the farmers/producers both individual and group.

5. Regulatory and voluntary

The government is responsible for enacting legislation for ensuring food safety for consumers. The regulatory body, which is also an arm of the government, primarily enforces the law in the food sector. The regulatory body can also frame standards as a part of the regulations. These are applicable, usually as mandatory standards whereas, the standards prepared by the national standards body (NSB) are mostly voluntary in nature. The government or a regulatory body can adopt such a national standard, which then becomes a mandatory standard.

There is an alternative mechanism available to bring in compliance with GAP and other best practices through voluntary standards. Voluntary standards are principally developed in partnership with stakeholders, are consensus standards, and are market driven with a choice for the agriculture, industry or trade to implement them or not.

Voluntary standards with respect to food safety during primary production stages in agriculture, animal husbandry etc. the world over are common and take different forms, for instance the International Featured Standards (IFS), British Retail Consortium (BRC) global standards, and GLOBALG.A.P. standards. There are also many voluntary standards owned by the national standards body in various countries.

The GAP standard in a country can be made mandatory by regulation and implemented compulsorily if such machinery is available in the country as it will involve certification of a large number of farmers. There can also be a voluntary scheme operated by a governmental agency or any other agency authorized by the government, with adoption of a national standard or a voluntary standard. Such an agency shall be the scheme owner.

In a country, the government (ministry or department), a regulatory body or the NSB can prepare the country specific standard on GAP. The scheme owner can then adopt the standard. Conformity assessment bodies (CABs) or certification bodies (CBs) established in the country can be recognized by the scheme owner. The CB can certify the producers according to the GAP standard and also in accordance with the international standards,

namely ISO/IEC 17065:2012. Such a CB can obtain accreditation from an accreditation body. Therefore, in the voluntary regime the regulatory body is replaced by the scheme owner.

6. Status and decisions needed by a country

In order to implement the GAP scheme uniformly in a country for overall development of agriculture and horticulture, the government at the highest level is required to take the following policy decisions:

- i) whether the GAP scheme will be implemented on a voluntary or a mandatory basis;
- ii) the structure to be established for implementing GAP;
- iii) decision on scheme owner responsible and department responsible and the secretariat;
- iv) decision on certification body – whether governmental or private, whether a single CB to be accredited or multiple CBs;
- v) decision on the approving mechanism for CB – whether the CB needs to be accredited or is it simply approved by the scheme owner based on the requirements of ISO 17065;
- vi) the constitution of multi-stakeholder committees to develop and oversee the operation of the scheme – *steering committee, technical committee and certification committee*;
- vii) finalizing the standards and scheme documents on GAP – the four modules – whether a single module will be implemented or the whole set, and whether implementation will be gradual and progressive – all these will depend on the country/ producer priorities; and
- viii) decision on and development of a certification mark or logo.

7. GAP scheme implementation in a country

For countries to implement GAP, the following steps may need to be taken:

- The government (ministry or department) or a regulatory body or national standards body prepares a country specific standard on GAP based on GAP standard given in the Scheme (Volume 1 of this publication).
- The government introduces a scheme for GAP implementation by producers.
- A certification body (CB) is either established in the country or if already existing is recognized by the scheme owner for certifying producers according to the GAP standard and scheme.
- For certification, international standards, namely ISO/IEC 17065:2012 shall be applicable in addition to scheme requirements.
- A CB needs to obtain accreditation from the accreditation body or be approved by the scheme owner following the requirements of ISO 17065.

8. Development of GAP scheme

The GAP scheme needs to be developed by a country and will consist of the following elements:

GAP standard – The scheme owner through a technical committee (governmental body, regulatory body) consisting of subject-matter specialists prepares the GAP standard which are the requirements to be fulfilled by farmer. The standard is a stand alone document that any farmer can implement, even those not seeking certification.

Conformity criteria – recognizing that 100 percent compliance is not possible, requirements are classified into what are essential, and what and how many deviations can be accepted.

Governing structure – decision-making and supervision for implementing GAP is the responsibility of the scheme owner. The scheme owner will create a steering committee at the apex level with a technical committee for looking after the standard and related technical aspects and a certification committee will look after certification aspects including related policy matters.

Certification process – this is the procedure for evaluation, verification and certification ensuring uniformity in practices for certification of individual farmers or group according to ISO 17065 and the scheme requirements.

Rules for use of certification mark – the scheme owner will frame the rules and oversee their implementation by the stakeholders, namely farmers/producers, certification bodies and accreditation body.

9. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 231 – 243).

Session 11 Guidance for establishing a scheme owner

45 minutes

1. Session objectives

The objectives of this session are to:

- understand the concept of scheme and scheme owner (SO) and the roles and responsibilities of an SO;
- guide the decision-maker in the country in identifying the appropriate SO; and
- guide the SO on the documents required to implement a scheme.
- guide the SO on the rules for use of certification mark/ logo

2. Contents

- Concept of scheme and scheme owner (SO)
- Options for and requirements of the SO
- Roles and responsibilities of SO
- Documentation for a scheme owner
- Rules for the use of a certification mark/ logo.

3. Concept of scheme and scheme owner

The scheme consists of criteria or standards that need to be met, the conformity assessment infrastructure and process, the governing structure for decision-making, a certification mark.

Scheme owner – It is an organization or body identified by a country responsible for setting up and operationalizing the GAP system/ scheme in their country. The SO may be a governmental organization or an alliance such as an agency formed as a result of collective agreement between independent economic units sharing certain objectives – some form of collective organization or group (association/ inter-professional body). The SO owns the GAP scheme and the certification mark or logo.

4. Requirements of scheme owner (SO)

The SO should fulfil the following requirements:

- i) it should be a non-profit body that is a legal entity (a governmental SO is deemed to be a legal entity on the basis of its governmental status);
- ii) it shall have a mandate for introducing, upgrading and/or internalizing quality in agriculture and/or horticulture;
- iii) it should be able to take on full responsibility for the objectives, the content and the integrity of the GAP scheme;
- iv) it shall not have any conflict of interest in its role or responsibility and manner of functioning;
- v) it should be able to protect the confidentiality of information provided by the parties involved in the scheme;

- vi) it shall have the capacity for the range of activities and schemes undertaken to cover geographic regions in which the GAP scheme operates;
- vii) it should evaluate and manage the risks/liabilities arising from its activities; the scheme owner should have adequate arrangements (for example, insurance or reserves) to cover liabilities arising from its activities and it should have the financial stability and resources required for it to fulfil its role in the operation of the GAP scheme; and
- viii) it should have the capacity to maintain the scheme and be able to provide guidance when required to various participants in the scheme; the SO should be able to assume full responsibility for the objectives, content and integrity of the scheme.

5. Roles and responsibilities of scheme owner

5.1 Once the scheme is adopted by the scheme owner, it should perform various roles and responsibilities which are identified below:

- i) Once the scheme is adopted in a country, the scheme owner should ensure that information about the scheme is made publicly available to ensure transparency, understanding and acceptance.
- ii) SO needs to create, control and maintain adequate documentation for the operation, maintenance and improvement of the scheme.
- iii) The scheme owner owns the GAP certification mark (the logo), which it needs to get duly registered with the appropriate authority in the country. The certification bodies and certified clients shall be required to obtain formal approval from the scheme owner for the use of the mark.
- iv) The SO shall approve the accreditation body and the certification body authorized to accredit or certify under the scheme.
- v) The scheme owner shall develop a surveillance plan to exercise supervision over the scheme and oversight on certified producers, as considered necessary from time to time. The plan may cover certification bodies and accreditation bodies, as considered necessary.
- vi) The scheme owner needs to organize regular meetings of committees (steering, technical, certification committees) as needed for development and maintenance of the scheme.
- vii) The scheme owner shall be responsible for handling complaints at all levels (stakeholders, public) regarding the quality of produce as well as the scheme operation. The organization shall ensure that the identity of the complainant is kept confidential, and where the nature of a complaint is sensitive, its contents shall be handled with confidentiality too.
- viii) The SO shall have a system as per international standards to handle appeals against any decision of SO/ AB/CBs. For appeals on the decisions of an SO an independent appeals panel should be in place.
- ix) The SO has the responsibility of capacity building of resources through training courses and workshops for both sensitization of stakeholders and development of human resources to ensure better implementation.

Some of the roles are detailed in the following paragraphs.

5.2 Monitoring and evaluation of the scheme

- i) There shall be a mechanism instituted by the SO to ensure that all requirements of the scheme are met by the certified entities (producer/group producers/ processors/ exporters), the certification body and the accreditation body.

- ii) The focus will be to ensure the stakeholders are given the confidence that certified entities, the certification body and the accreditation body are following the requirements at all times with consistency and accuracy.
- iii) The SO shall develop a surveillance plan to exercise supervision over the scheme, the certified producers, certification bodies and accreditation bodies, as considered necessary from time to time.
- iv) This shall be uploaded to the SO's Web site.

5.3 Safeguarding confidentiality

The SO shall have a policy and legally enforceable arrangement to safeguard the confidentiality of information obtained or created during the course of GAP scheme activity. The SO shall have arrangements to ensure that there is no breach of information during implementation of the scheme. Upon acceptance of being part of the SO at all levels, from time to time in connection with the scheme, the SO secretariat, appointees to the advisory board, any of the SO committees (steering committee/certification committee/technical committee), all such officials, representatives (government or private) or employment in case of a CB or AB shall sign a confidentiality and non-disclosure undertaking in the prescribed format.

6. Governing structure

6.1 Implementation of the scheme shall be through a multi-stakeholder committee – a steering committee at the apex level with the secretariat being held by the scheme owner. This may be supported by a technical committee and a certification committee.

Note: If deemed appropriate, the scheme owner could have a single committee dealing with all these matters.

6.2 Composition and terms of reference of committees

6.2.1 General principles

In appointing various committees, a number of general principles should be followed principally ensuring that there shall be a balance of interests represented in the steering committee such that no single interest predominates. When nominating representatives for technical/certification committees, preference shall be given to personnel who are subject experts.

- i) It is desirable to invite organizations to nominate principal and alternate members in the interest of higher attendance and continuity.
- ii) The presence of at least 50 percent of members of the committee shall constitute the quorum for a meeting.
- iii) Every committee should meet at least once in six months.

6.2.2 Terms of reference of the committees

Steering committee (SC)

The SC shall be responsible for:

- a) the overall development, modification and supervision of the scheme;
- b) receiving recommendations of technical/certification committees and deciding on these recommendations; and

- c) constituting any other committees, as needed.

Technical committee (TC)

The TC shall be responsible for:

- a) developing and maintaining any standards or technical documents needed by the SO;
- b) national Interpretation of the clauses, if required;
- c) defining the certification criteria; and
- d) resolving any related issues.

Certification committee (CC)

The CC shall be responsible for:

- a) developing, maintaining and revising as appropriate the certification process;
- b) developing, maintaining and revising as appropriate the requirements for certification bodies for the operation of the scheme;
- c) developing guidance documents to assist producers to apply for certification;
- d) designing the certification mark, if any;
- e) developing, maintaining and revising as appropriate the rules for the use of the certification mark or logo; and
- f) resolving any issue relating to certification.

7. Use of certification mark

- i) The GAP certification mark, hereinafter referred as the mark, is a protected mark owned by the SO.
- ii) There may be more than one mark approved by SO depending on whether some or all modules are used as the standard or criteria to certify producer(s).
- iii) The mark shall be distinct for each standard/ criteria used by the SO for certification of the producer(s).
- iv) All producers or producer groups that have been certified under the scheme by the approved CBs shall be eligible to use the mark after obtaining formal approval.
- v) The mark(s) shall be used in such a manner as to imply that the farm produce (fruits and vegetables) has been grown using Good Agricultural Practices (GAP). It shall not be used to imply that the produce itself is certified. The mark shall not be applied to the produce.
- vi) SO shall frame the rules for use of the certification mark.

8. Documentation

The SO should create, control and maintain adequate documentation for the operation, maintenance and improvement of the scheme. An indicative list of documentation to be developed and maintained by the SO is given in the slides.

9. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 244 – 263).

Module IV GAP certification and accreditation

Session 12 Importance of GAP certification and accreditation

30 minutes

1. Session objectives

The objectives of this session are to understand:

- what is conformity assessment, accreditation and certification;
- the accreditation requirements for a CB and test laboratory; and
- the benefits of accreditation and certification.

2. Contents

- Some definitions – Conformity assessment, certification and accreditation
- Accreditation/ approval of certification body
- Accreditation/ approval of laboratories
- Benefits of GAP certification and accreditation.

3. References

This module draws on the requirements provided in the following documents:

- ISO/IEC 17000:2004 “Conformity assessment – Vocabulary and general principles”
- ISO/IEC 17011:2004 “Conformity assessment - General requirements for accreditation bodies accrediting conformity assessment bodies”
- ISO/IEC 17065:2012 “Conformity assessment - Requirements for bodies certifying products, processes and services”
- ISO/IEC 17067:2013 “Conformity assessment - Fundamentals of product certification and guidelines for product certification schemes “.

4. Conformity assessment, certification and accreditation

4.1 Conformity assessment

The definition of conformity assessment in “Conformity assessment – Vocabulary and general principles”, ISO/IEC 17000:2004 is demonstration that specified requirements relating to a product, process, system, person or body are fulfilled. The subject field of conformity assessment includes activities such as testing, inspection and certification as well as the accreditation of conformity assessment bodies.

In the same international standard, third-party conformity assessment activity is defined as the conformity assessment activity that is performed by a person or body that is independent of the person or organization that provides the object, and of user interests in that object.

The expressions “object of conformity assessment” or “object” are used in this international standard to encompass any particular material, product, installation, process, system, person or body to which conformity assessment is applied and a conformity assessment body is the body that performs conformity assessment services. A service is covered by the definition of a product.

4.2 Certification

Certification has been defined differently by the International Organization for Standardization (ISO) and Codex Alimentarius Commission (CODEX). The definitions are as below:

The definition in ISO/IEC 17000:2004 is “Third-party attestation related to products, processes, systems or persons”. In the same International standard, “Attestation” has been defined as the issuance of a statement based on a decision following review that fulfilment of specified requirements has been demonstrated. “Review” has been defined as the “verification of the suitability, adequacy, effectiveness of selection and determination activities, and the result of these activities, with regard to fulfilment of specified requirements by an object of conformity assessment.”

The CODEX definition of certification is “the procedure by which official or officially recognized certification bodies provide written or equivalent assurance that food or food control systems conform to requirements. Certification of food may be, as appropriate, based on a range of inspection activities, which may include continuous online inspection, auditing of quality assurance systems, and examination of finished products.”

4.3 Accreditation

Accreditation has been defined in “Conformity assessment – General requirements for accreditation bodies accrediting conformity assessment bodies” ISO/IEC 17011:2004 as “third-party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks.”

Therefore, accreditation is an independent evaluation of conformity assessment bodies (certification bodies) against recognized standards (GAP standard) to ensure their impartiality and competence. In an accreditation process, assessment of competency, authority, or credibility is carried out.

The accreditation process ensures that the certification bodies’ practices are acceptable, meaning that they are competent to test and certify that third parties (in this case producers or producer groups), behave ethically and implement suitable quality assurance practices.

Accreditation bodies are established in many countries with the primary purpose of ensuring that conformity assessment bodies are subject to oversight by an authoritative body.

The International Accreditation Forum (IAF) manages these arrangements. IAF is the world association of conformity assessment accreditation bodies and other bodies interested in conformity assessment in the fields of management systems, products, services, personnel and other similar programmes of conformity assessment.

5. International scenario on certification and accreditation

5.1 WTO – TBT agreement

Conformity assessment procedures and accreditation are universally accepted mechanisms for quality and reliability of products and services in Article 6 of the Technical Barriers to Trade Agreement.

5.2 CASCO

CASCO of ISO is a policy-making body with the mandate to develop international standards related to conformity assessment. CASCO is also actively involved with the International Electro-technical Commission (IEC) in the development of international standards on conformity assessment.

5.3 International standards

There are several international standards with respect to conformity assessment, certification, testing, accreditation, qualification and criteria of personnel working in the fields of conformity assessment etc. The standards relevant to accreditation bodies, certification bodies and laboratories are as follows:

- ❖ ISO/IEC17011 “Conformity assessment – General requirements for accreditation bodies accrediting conformity assessment bodies”
- ❖ ISO 17025:2005 “General requirements for the competence of testing and calibration laboratories”
- ❖ ISO/IEC 17065 “Conformity assessment – Requirements for bodies certifying products, processes and services”.

5.4 International Accreditation Forum (IAF), Inc.

IAF is the world association of conformity assessment accreditation bodies and other bodies interested in conformity assessment in the fields of management systems, products, services, personnel and other similar programmes of conformity assessment.

Its primary function is to develop a single worldwide programme of conformity assessment that reduces risk for businesses and their customers by assuring them that accredited certificates may be relied upon. Accreditation assures users of the competence and impartiality of the body accredited.

6. GAP certification

This refers to the third party conformity assessment of practices on the farm(s) that minimize contamination during the production process of farm produce. The third party is called a certification body (CB). The assessment by a CB covers compliance with all sections of GAP requirements. CB certifies the farm(s) with respect to requirements (GAP) laid down for food safety, environment management, safety and welfare of farm workers and produce quality. The continuance of certification is decided on the basis of surveillance assessments. The requirements that the CB itself has to comply with have been listed in the slides.

7. Testing (Laboratories)

Laboratories play an important role in conformity assessment activity. They test samples of products for safety, quality and genetic criteria. They are also important for testing seed, soil and water samples. The laboratories need to have accreditation according to the international standard, ISO 17025 “General requirements for the competence of testing and calibration laboratories”. The requirements of ISO 17025 cover broadly two areas, namely management requirements and technical requirements of a laboratory.

The management requirements specify the organizational and management aspects including documentation and records as well as internal quality management systems, whereas the technical requirements specify the implementation aspects such as personnel, equipment, testing, calibration and related areas. An overview of the requirements of ISO 17025 is given in the slides.

8. Benefits

8.1 Benefits of GAP certification

GAP certification has many benefits; some common ones are as follows:

- i) GAP ensures both the quality and safety of produce throughout the primary production process, that is pre-production, production, harvest and post-harvest stages.
- ii) GAP certification is a product certification system. It usually involves the application of a certification mark and therefore helps maintain consumer confidence in the produce.
- iii) Since GAP is becoming not only a customer requirement but also a regulatory requirement, getting GAP certification would help producers to gain wider market access.
- iv) As certification would take care of both quality and food safety, it would help to protect organized purchasers' own brands.
- v) Since the certified system would also look at the environmental management and social welfare aspects of production this would be an added advantage.

8.2 Benefits of accreditation

- i) Accreditation is the preferred mechanism for ensuring public confidence in the reliability of activities that impact on health, welfare, security and the environment.
- ii) Accreditation gives consumers confidence through ensuring consistent standards in the quality and safety of products or services purchased.
- iii) Some additional benefits are as follows:
 - a) Accreditation is an essential tool for decision-making and risk management.
 - b) Organizations save time and money by selecting an accredited CB.
 - c) Accreditation is objective proof that a CB has the competence to comply with the best practices of GAP certification.
 - d) It is the internationally recognized system that is used to develop and sustain standards of performance.

9. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 264 – 287).

Session 13 Criteria for selection of an accreditation body (AB) for GAP

30 minutes

1. Session objectives

The objectives of this session are to understand the role of an accreditation body (AB), the requirements that an AB needs to meet in terms of competence and compliance with requirements, and how to select an AB in relation to GAP.

2. Contents

- Role of an AB
- Requirements of an AB
- Criteria for selection of an AB.

3. Role of an accreditation body

The accreditation/approval of a CB for the GAP certification scheme and laboratories for testing indicate formal demonstration of the CB's or the laboratory's competence to carry out specific conformity assessment tasks. In the case of a CB, these are related to certification, whereas for the laboratory, they are related to the testing of samples. Accreditation by an AB having a Multilateral Recognition Arrangement (MLA) with the International Accreditation Forum (IAF) ensures recognition of the CB in other countries. Regular surveillance by the AB of the CB ensures the independence and competence level, thereby reducing any risk for the government, business interests and ultimately the customers. Accreditation enhances the confidence of consumers that through consistent implementation of standards the quality/safety of products is ensured. Accreditation of certification/ inspection/testing activities facilitates worldwide trade.

4. Accreditation Body (AB) requirements

- 4.1 The AB shall be in compliance with the requirements of ISO/IEC 17011 the international standard for accreditation bodies and be a signatory with the IAF.
- 4.2 The accreditation body should be a legal entity; it may be governmental or private, however the increasing trend worldwide is that of a single national accreditation body which is government owned (such as BAB in Bangladesh) or government sponsored (NABCB in India) or government endorsed (such as in many European countries that have non-governmental ABs endorsed by countries as national ABs).
- 4.3 The AB should have authority and responsibility for decisions relating to accreditation, including the granting, maintaining, extending, reducing, suspending and withdrawing of accreditation.
- 4.4 The AB should have a documented structure with defined roles and responsibilities for its personnel and committees, if any.

4.5 ABs shall be impartial. They are not expected to engage in consultancy or conformity assessment or any other activity that may have a bearing on their impartiality. They are also expected to be free from any conflict of interest in relation to their related bodies that may be linked to them by common ownership, management etc.

4.6 ABs should have adequate financial resources and provide for any liability that may arise.

4.7 ABs should maintain confidentiality in relation to any information obtained from the conformity assessment bodies they accredit.

4.8 ABs should have procedures for internal audit, management review, corrective actions and preventive actions.

4.9 ABs should have sufficient competent personnel (internal, external, temporary, or permanent, full/ part time) having education, training, technical knowledge, skills and experience necessary for handling the type, range and volume of work performed. ABs shall also have a process for defining the competence of their assessors and other personnel involved in the accreditation process. They can use in-house or external personnel or even resort to outsourcing to augment their resources.

4.10 ABs shall follow a defined assessment process covering document review, on-site office assessment including branches of the CB, if any, and witnessing of a sample of CB's audits/inspections and auditors/inspectors.

4.11 ABs shall have a system for handling complaints and appeals.

5. Criteria for selection of an accreditation body (AB)

5.1 The scheme owner (SO) shall give first preference to the national accreditation body (NAB) that is present in the country. In case the AB though present in the country, does not have any experience of GAP nor has a scheme for accreditation of CBs for GAP, the SO may have a discussion with the AB to understand the timelines for creating a programme for GAP certification bodies.

5.2 However, if the AB is not signatory to an IAF MLA, it may pose a challenge in getting GAP certification accepted across borders if the national GAP scheme is sought to be benchmarked with international schemes.

5.3 In case the country does not have an AB or the AB is not in a position to set up a scheme for GAP, then the SO may either approve the CB (based on ISO 17065: 2012 and the additional requirements prescribed in Session 14) **OR** take on an AB from outside the country. Various factors need to be considered before finalizing one or more ABs for accreditation of the CBs.

- i. The AB needs to be a member of the IAF and should have signed the MLA for product certification as per ISO 17065 with the scope being any of the schemes pertaining to GAP. The reason is that the CB accredited by the AB which is an IAF member and also has signed an MLA on product certification will result in global acceptability of the certificates issued.

- ii. It is desirable that the AB has signed an MoU with FoodPLUS GmbH for GLOBALG.A.P which ensures it is competent in GAP accreditation and meets the above two conditions.
Note: In the event of an SO considering benchmarking GAP to the globally accepted GLOBALG.A.P. scheme, an AB having signed the MoU shall be able to achieve the objective of the SO faster.
- iii. It is desirable that the AB has experience of handling CBs that certify GAP schemes. This experience will be handy in understanding the various requirements of the national GAP scheme when assessing the competence of a CB.
- iv. The AB meets the technical requirements.
- v. The SO may consider an AB based on the fee for accreditation charged by the AB.
- vi. The SO may consider an AB based on the geographical proximity to its country.
- vii. The SO may consider an AB based on the service delivery of the AB.
- viii. The SO may consider an AB if it is felt that the AB gives them a competitive advantage to enter intended overseas markets.
- ix. The SO may consider an AB based on the duration of validity of accreditation it shall award to the CB.

5.4 The SO may maintain a list of ABs that meet the above requirement for the CB to finalize the AB.

5.5 **Change of AB** – In the event that the CB wishes to change an AB either because of the country having established its own AB or if there are service delivery or other issues, then it may switch to another AB with due consultation and as per the stated policy of the AB and the IAF system.

6. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 288 – 296).

Session 14 Establishment of a certification body (CB) for GAP

Session time: 45 minutes

1. Session objectives

The objectives of this session are to understand the functions and requirements of a certification body and how to set up one to meet international accreditation requirements and apply for accreditation.

2. Contents

- What a certification body is
- Who can set up a certification body
- Functions of a certification body
- Principles of certification
- Establishment of a certification body and requirements of a CB (as per ISO 17065 and additional requirements)
- Documentation to be maintained by a certification body
- Steps for seeking accreditation by a certification body.

3. References in this session

This module draws on the requirements provided in the following documents:

- ❖ **ISO/IEC 17000** “Conformity assessment – Vocabulary and general principles”.
- ❖ **ISO/IEC 17065** “Conformity assessment – Requirements for bodies certifying products, processes and services”.
- ❖ “Certification process of the GAP scheme” (given in volume 1 of this publication).

4. What a certification body is

A certification body (CB) is a third-party conformity assessment body operating certification schemes. It is an independent entity that is contracted by the producers or producers group to evaluate the compliance of their Good Agricultural Practices (GAP) with the requirements of the national standard for GAP and certification requirements in accordance with the international standard and to issue a registration certificate. The CB can be a private or governmental body. It, however, also needs to comply with a set of requirements in accordance with the international standard so that its certification has credibility. ISO/IEC 17065:2012 “Conformity assessment — Requirements for bodies certifying products, processes and services”, shall apply.

Note: Conformity assessment means checking that products, materials, services, systems or people measure up to the specifications of a relevant standard.

5. Who can set up a CB

A CB can be set up by any body or organization. There is no legal bar on anyone setting up a CB. A CB can be a proprietorship, a partnership, a society, a private or public limited – profit or non-profit – governmental or private or non-governmental organization. The basic or essential requirements shall be establishing and maintaining the body or organization according to international standard ISO/IEC 17065 and other international standards referred therein by qualified and competent people and the necessary documentation and information technology tools. There is no requirement that the CB should have its own laboratory, testing or inspection equipment.

6. Functions of a CB

A CB can be non-governmental or governmental (with or without regulatory authority). The functions of a CB generally are:

- creating a certification system as per the requirement of the scheme – in the case of the GAP certification scheme, the requirements shall be as per ISO 17065 and GAP specific requirements specified in this manual;
- updating of scheme information and disseminating it to certificate holders (certified producers/growers);
- organizing resources – human resources (personnel of CB and persons working for it) – and infrastructure;
- certification of applicants (producers/growers);
- handling of complaints and appeals;
- mechanism to ensure that information is accessible by the public; and
- market intelligence to ensure no misuse or misinterpretation.

7. Principles of certification

The principles for inspiring confidence are impartiality, competence, confidentiality and openness, responsiveness and responsibility. These are explained below.

Impartiality – It is necessary for certification bodies and their personnel to be impartial in order to give confidence in the results to consumers and to those going through the certification process. Risks to impartiality include bias that may arise from self-interest, self-review (for example, while performing a conformity assessment activity in which the CB evaluates the results of other services it has already provided, such as consultancy), advocacy (for example, a CB or its personnel acting in support of, or in opposition to, a given company which is at the same time its client), assuming consistency on the basis of familiarity (risks that arise when a CB or its personnel assume(s) the producers or producers group with whom they are familiar will consistently conform, instead of seeking evidence of conformity), intimidation (for example, the CB or its personnel can be deterred from acting impartially because of risks from, or fear of, a client or other interested party), and competition (between the client and a contracted person).

Competence – The competence of the personnel of the CB is necessary in order to deliver

certification that provides confidence.

Confidentiality and openness – Managing the balance between requirements related to confidentiality and openness affects the trust of stakeholders and their perception of value in the conformity assessment activities being performed.

Confidentiality – To gain access to the information needed to conduct effective conformity assessment activities, the CB needs to provide confidence that confidential information will not be disclosed. All organizations and personnel have the right to ensure the protection of any proprietary information that they provide, unless the law or the certification scheme that has been applied for requires disclosure of proprietary information.

Openness – A CB needs to provide access to, and disclosure of, appropriate and timely information about its evaluation and certification processes, as well as about the certification status of any product (granting, maintaining, extending or reducing the scope of, suspending, withdrawing or refusing certification), in order to gain confidence in the integrity and credibility of certification. Openness is a principle of access to, or disclosure of, appropriate information.

Access to information – Any information held by the CB on a product that is the subject of an evaluation and/or certification should be made accessible, upon request, to the person or organization that contracted the CB to undertake the certification activity.

Responsiveness to complaints and appeals – The effective resolution of complaints and appeals is an important means of protection for the CB, its clients and other users of conformity assessment against errors, omissions or unreasonable behaviour. Confidence in conformity assessment activities is safeguarded when complaints and appeals are processed appropriately.

Responsibility – The client, not the CB, has the responsibility of fulfilling the certification requirements. The CB has the responsibility to obtain sufficient objective evidence upon which to base a certification decision. Based on a review of the evidence, it makes a decision to grant certification if there is sufficient evidence of conformity, or a decision not to grant certification if there is not sufficient evidence of conformity, or a decision not to maintain certification.

8. Establishment of a CB

Setting up of a CB is comparatively easy as it only requires people and documentation unlike a laboratory, which requires equipment and access to the latest technology. However, the simplicity of forming a CB creates a challenge with respect to authenticity. The first step is to choose the entity that will function as a GAP CB – it may be a governmental organization such as the department of agriculture or a private CB responsible for various certifications. The CB needs to be a legal entity and needs to define its structure and organization to ensure it meets with the requirements of independence, impartiality and non-conflict of interests. It is necessary to ensure its financial stability and arrange for liability cover. It

needs to have a clear organizational structure with the required competencies and clearly defined roles and responsibilities of the various personnel.

Preparing a CB for GAP certification would involve the development of requirements for the competence, consistent operation and impartiality as per the requirements of ISO 17065. In addition, the certification process as laid down in the GAP scheme will need to be followed.

The CB, after setting up in accordance with the requirements of ISO 17065, including documenting the procedures and establishing the required implementation mechanisms, needs to then apply for accreditation.

The requirements to be fulfilled by a CB as specified in ISO 17065 are as follows:

General requirements – This refers to those requirements with respect to being a legal entity, having a legally enforceable certification agreement, use of certificates and marks of conformity, management of impartiality, liability and financing, non-discriminatory conditions, confidentiality, publicly available information, information on the certification activity.

Structural requirements – The CB should define and document its organizational structure with clear roles and responsibilities of the management and certification personnel and any committees/ boards. The CB shall have formal rules for the appointment, terms of reference and operation of any committees that are involved in the certification process. A mechanism for safeguarding impartiality should be in place.

Resource requirements – These cover CB personnel, competence of management and certification personnel, use of individual external auditors and external technical experts, outsourcing /subcontracting requirements.

Process requirements – The requirements against which the products of a client are evaluated are those contained in the GAP standard for fruits and vegetables. From the certification body point of view they need to put in place procedures for application and application review, evaluation and evaluation review, taking certification decisions and issue of certification documentation, maintaining a directory of certified products, surveillance activities, dealing with changes affecting certification, aspects related to termination/ reduction/ suspension/ withdrawal of certification, record maintenance and handling complaints and appeals.

Management system (MS) requirements – The certification body needs to establish and maintain a management system that is capable of achieving the consistent fulfilment of the requirements of the international standard ISO/IEC 17065:2012 in accordance with either Option A or Option B (clause 8 of ISO/IEC 17065:2012).

Under Option A, the CB needs to address the management system requirements namely general management systems documentation (for example, manual, policies, definition of responsibilities, control of documents, control of records, management review, internal audit, corrective actions, and preventive actions. Under Option B, the CB needs to establish and maintain a management system as per ISO 9001. A CB that has established and maintains a management system as per the requirements of ISO 9001 fulfils the management system requirements.

The management systems requirements should cover documentation requirements, procedures for control of documents and records, management review, internal audits, identification and management of nonconformities and corrective actions, preventive actions to eliminate the causes of potential nonconformities

9. Additional requirements

In addition to the requirements given in ISO 17065, there are certain other requirements which are built into the GAP scheme and these are described below.

9.1 Authority for decision-making – The CB shall identify persons for decision-making at critical stages in its functioning, for example certification decision-making on the basis of evaluation and review of the relevant documents and reports, decision-making on complaints, appeals etc. The information shall be put, as appropriate, on the CB's Web site.

9.2 Internal resources for some activities – CB's activities shall be performed by internal personnel other than on-site audits/inspections. The internal personnel resources will include regular employees, personnel employed on a long-term (one year or more) contract on a full-time basis or employed on a long-term contract (two years or more) on a part-time basis.

9.3 Inspector competence – A degree or post-secondary education in a related subject with a minimum of five years work experience in agriculture including at least two years in quality assurance. The person shall have undergone training in auditing. He/she shall have performed a minimum of 12 days of inspections as a trainee with respect to GAP criteria. The competence criteria for auditors/inspectors shall vary for different crops based on risk assessment, risk analysis etc.

9.4 Outsourcing – The arrangement of a CB for testing of samples at a laboratory having accreditation according to ISO 17025 may be required as part of an evaluation. It will be the only outsourced activity. No other outsourcing of CB's services shall be done. Use of external personnel by the CB for auditing or inspection work is not considered as an outsourcing activity.

9.5 Marketing, processing and following up – The CB shall develop material for marketing its certification services, giving up-to-date description of the GAP evaluation and certification process, including:

- i) methods/ process of receiving enquiries from individual producers or producers group and defining the two and their requirements;
- ii) method of calculating the workdays for assessment/evaluation;
- iii) method / process and format for proposal or contract with producers or producers group including fees, terms and conditions;
- iv) procedure for announcing an assessment/evaluation date with timetable giving details of auditors allocated for assessment; and
- v) procedure for auditing, review, decision-making and granting of certificate.

The information shall be displayed on the Web site of the CB.

10. Certification body – documentation to be maintained

The CB has to develop its system with procedures and records formats. A list of documents including formats and records that need to be maintained by the CB are given in the slides under five main headings namely general documentation, process documentation, structural documentation, documentation with respect to personnel and formats/ records.

11. Seek accreditation

The CB set up in accordance with the requirements of ISO 17065:2012 needs to apply to an accreditation body (AB) for accreditation. The AB will carry out the accreditation process grant accreditation to the CB on its being judged as complying with ISO 17065:2012 and the scheme requirements. The steps to be followed for accreditation of a certification body by the accreditation body are as follows:

- i) Enquiry – the CB will enquire into the possibility of accreditation from the desired AB.
- ii) Application – the CB will fill an application form giving details of the scope of accreditation they wish to apply for. Based on this application the AB would give a quote with the terms and conditions of the accreditation process.
- iii) Pre-assessment – the AB will conduct a pre-assessment or a document review of the CB's documents.
- iv) Assessment – office assessment and witness audit of the CB conducting an audit would be a part of the actual verification of the systems followed by the CB. It includes four steps, namely arranging an opening meeting, assessing/auditing, evaluating results and arranging a closing meeting.
- v) Clearance of non-conformities – any gaps identified during assessment would need corrective actions to be taken by the CB and clearance of the nonconformity by the AB.
- vi) Recommendations to AB – once satisfied the auditors would put forward their report for decision-making.
- vii) Evaluation of recommendation and award of accreditation – decision-making would involve evaluation of recommendation and award of accreditation certificate.
- viii) Maintenance of accreditation – the CB needs to maintain its system and the accreditation status and undergo surveillance and recertification audits at defined intervals.
- ix) Extending scope of accreditation – CB needs to develop and implement required changes to extend its scope of accreditation such as get competent auditors/develop competency of auditors for the extended scope etc.

12. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 297 – 325).

Session 15 GAP certification process

Session time : 45 minutes

1. Session objective

The objective of this session is to understand comprehensively the process of GAP certification.

2. Contents

- Applicants for GAP certification
- Certification procedure to cover application and application review, certification agreement, evaluation, certification decision and grant of certification
- Post certification actions including surveillance evaluation, sanctions, changes affecting certification, removal of certification and renewal of certification
- Complaints and appeals
- Records
- Certification fees.

3. Application for GAP certification

3.1 The applicant can be either an individual producer or a producer group (a group consisting of two or more producers). The individual producer or each producer, part of a group and the group itself shall have legal status.

3.2 The requirements applicable for individual producers shall also be applicable for the group in addition to the quality management systems requirements given in the general requirements module of the GAP standard for fruits and vegetables for SAARC countries.

3.3 The producer is required to adopt the GAP and other practices according to ISO 17065 for at least three months and have conducted self-assessment prior to submission of the application.

3.4 The application shall be on a prescribed format for giving general information about the producer, namely name, address, contact details, proof of legal status (legal entity or certified entity) and details about the farm. Further information required on the produce including production site, annual production area, type of facility, such as greenhouse or field production, crop details, internal inspection details, harvested quantity and dates.

3.5 The application format along with information required shall be made available on the Web site of the CB.

3.6 The applicant shall declare (in the form of an undertaking) whether it has been an applicant/certified under this scheme with or by any other CB, and if yes, then shall provide the previous evaluation reports to the new certification body. The certification body may verify the information provided by contacting the previous CB.

3.7 The applicant shall also declare any proceedings relating to its operations, any proceedings by any regulatory body or suspension/cancellation/withdrawal of any certification/approvals under any regulations or otherwise.

4. Certification procedure

4.1 Application review

- i) Within a reasonable period of time the designated personnel of the CB shall undertake a review of the application as per the documented procedure to ascertain its completeness with respect to the certification requirements.
- ii) On the basis of the review the applicant shall be informed of the deficiencies observed.
- iii) Only applications found to be complete and supported with all documents sought shall be accepted, registered and a receipt issued with a unique identification number.
- iv) Applications from producers who have earlier either misused the certification mark or have been implicated / convicted by the court, or whose earlier certificate was cancelled by a CB because of violation of terms and conditions/misuse of the GAP certification mark shall not be registered within one year of such conviction/strictures by the court/cancellation of the certificate by any CB.
- v) Applications from producers found to be misusing the certification mark, while their application is being processed for grant of certificate, shall not be processed any further, and rejected after a due notice of 15 days. Fresh applications from such producers shall be entertained only after a gap of one year and after the applicant provides a guarantee (an formal declaration with a stamp) of not indulging in such practices.
- vi) The review shall also establish that means are available to perform all evaluation activities and that the CB has the competence and capability to perform the certification activity.
- vii) Records of review shall be maintained.

4.2 Certification agreement

There shall be a certification agreement between the registered applicant (individual producer or the group) and the CB containing the terms and conditions which the producer is required to abide by after being granted certification. The farm management plan (FMP) of the applicant shall also be a part of the agreement. Since the producer uses a certification mark, she/he is required to pledge her/his commitment to implement on a continuing basis the agreed FMP for ensuring conformity of produce and processes with the compliance/ verification criteria and the scheme requirements. The format for the certification agreement is required to be available on the approved CB's Web site.

4.3 Evaluation

It is an activity involving an audit of the applicant's documentation vis-a-vis on-site assessment of the farm(s) of the applicant, where the activities related to the cultivation of fruits and vegetables etc. are being carried out. The activity is performed by auditors and technical experts. The objective is to conduct an evaluation of the ability and competency of the applicant (individual producer/group), to ensure continued conformity with the requirements described in the relevant standard, compliance/verification criteria, applicable regulatory requirements, FMP, and traceability aspects. The adequacy and implementation of a system for complaint redressal and means of communicating the relevant information to consumers are also verified. In case of a group, the controls exercised by the group management with respect to the internal control system (ICS) are also evaluated. The number of farms to be evaluated in case the applicant is a group will be the square root of the total number of member farms of the group.

There are various stages in the evaluation as follows:

Pre-assessment or pre-evaluation (optional) – The purpose is to see if the producer is ready for initial evaluation or assessment. It would include a review of documentation and verification of implementation of some or all of the GAP requirements, in other words a sample audit.

Preparation and planning for evaluation – Prior to undertaking the site visit, the CB needs to study all the information received including FMP and ICS (in case of group certification).

Also the CB must prepare a plan for farm evaluation and checklists for requirements to be verified and evaluated during the farm evaluation, communicate the composition of the audit team to the applicant organization for identification of conflict of interest if any, and ensure all necessary information and/or documentation is made available for the evaluation.

Duration and timing of on-site evaluation – The normal duration of the farm inspection is a minimum of three hours without packing operations and a minimum of six hours for operations involving farm packing. For operations of produce handling involving a quality management system (QMS) audit with a centralized packhouse, the duration shall be eight hours. Guidance on calculation of evaluation time has been given in the slides.

The timing of farm inspection is synchronized with the harvesting period of the crop to ensure maximum coverage of the control points. The ideal timing will be when the crop is standing in the field and as close to harvest time as possible so as to verify all control points at least once in two years based on records/evidence. In the event that all control points are not checked during the inspection, either a follow-up visit may be scheduled or satisfactory proof may be submitted by the auditee. No certification will be issued unless all control points have been verified and non-compliances satisfactorily closed.

Non conformities (NCs)

NCs are deficiencies observed with respect to the GAP standards, compliance/verification criteria, scheme requirements (CB requirements) and/or the FMP during the first evaluation. The applicant shall be informed of these during the closing meeting and also in writing so as to take corrective actions. The NCs are classified as critical, major or minor depending on their nature and severity.

- **Critical NC** – when a specific control point that is critical to the integrity of a process or product of GAP fails to meet the stated requirement.
- **Major NC** – when the NC relates directly to the integrity of the farm produce and the producers inability to produce as per the compliance/verification criteria. A number of minor NCs under a particular section/module on the same aspect may be clubbed together and raised as single major NC.
- **Minor NC** – All other gaps and non-conformities are classified as minor. These shall generally be related to other implementation issues which do not directly affect either the safety of the produce or the producer's capability to produce a produce conforming to the compliance/verification criteria.

These shall be addressed within a pre-determined time. A root cause analysis shall be carried out by the producer and the CB shall be informed of the results. All NCs are required to be closed through verification of the corrective actions before the first certification is given. Critical and major NCs require a follow-up on-site evaluation.

Evaluation report and its review

The outcome of the evaluation is in the form of an evaluation report. The evaluation report, which is recommendatory in nature, is reviewed by an independent committee / persons who do not take part in the evaluation exercise. The evaluation report needs to provide clear evidence and conclusions about the fulfilment of the evaluation objectives and should contain sufficient detailed information regarding conformity with all the relevant certification requirements, including the standard, compliance/ verification criteria and FMP. The CB may develop appropriate report formats and a report writing guidance document to ensure that the report provides adequate and complete details for ensuring appropriate, evaluation, review and decision with respect to the granting of certification.

The records of evaluation and review need to be maintained.

Certification decision

The certification decision is taken by an authorized person or committee provided they have not been involved in the process of evaluation. Impartiality and absence of conflict of interest needs to be ensured. The CB grants certification after ensuring complete compliance with all requirements. There is no conditional grant of certification.

If a decision is taken not to grant certification, the CB shall notify the applicant and provide reasons for the refusal. If the applicant wishes to continue with the certification process, the CB can resume the process for evaluation after deficiencies are rectified by the applicant. The Web site of the CB shall reflect the status of the valid certificate /certificate with sanctions.

Certification documentation / certificate

On grant of certification, a signed certificate, uniquely identified, is issued, containing the following information:

- a) the name and address of the CB and its AB (if applicable);
- b) the name and address of the producer/group and the address of the certified farm;
- c) a unique identification number;
- d) the effective date of certification and expiry (validity maximum three years) and date of extending or renewing the certification;
- e) the scope of certification;
- f) the details of produce categories as an annex to the certificate/certification document or any other document intimating grant of certification (for group certification an annex will also include the names of farmers in the group); and
- g) for any revised certification documents, a means to distinguish these from any prior obsolete documents.

5. Directory of certified producers

The CB shall maintain and make publicly available on its Web site, a directory of valid certifications as well as names of producers under sanctions and those whose certificates have been cancelled. A procedure for updating its Web site shall be available with the CB. The CB shall confirm validity of a certificate on request to any stakeholder.

6. Post–certification actions

6.1 Surveillance evaluation

The CB shall conduct yearly on-site surveillance evaluations. These shall be computed based on the farm area. For group certification it shall also take into account the number of farmers in the group and the crops allotted based on risk management. During the surveillance evaluation, the evaluator shall check and report on compliance with the FMP and other certification requirements as well as actions taken on discrepancies observed during the previous evaluation. If any surveillance evaluation results in a fruitless visit because of any reason, the CB shall conduct another surveillance evaluation or an equivalent sample may be drawn from the market.

6.2 Other evaluations

In addition to the planned surveillance evaluations, the CB may also carry out unannounced evaluations, for example, when there are instances of failure of produce in terms of MRL or there has been a complaint against the certified farm. These shall primarily be carried out for investigating the reasons for failures. The CB may also carry out evaluations at short notice for verification of corrective actions in case of customer complaints. The workdays for such

evaluations may be decided by the CB and shall generally range between half to one workday.

6.3 Sanctions

The CB can impose sanctions on producers in case of observance of non-compliance or if corrective actions are not taken as indicated. Sanctions may be given in three sequential levels of actions: warning (producer not correcting non-compliance on GAP requirements within prescribed period; suspension (producer not taking corrective action as indicated by CB; and revocation or cancellation.

Suspension – The CB shall issue a notice of at least 15 days for suspension of certification to the producer. In case of detected frauds (deliberate attempt to circumvent/disregard the provisions of the scheme requirements) a notice may not be required. On receipt of instructions for suspension of certification, the producer shall suspend the use of the certification mark with immediate effect and carry out a root cause analysis and identify the necessary corrective actions for resolving the issue.

When certification is suspended, the CB shall ensure that during the period of suspension, the certified producer makes no misleading claims and advises the existing and potential purchasers regarding the status of certification, and ceases to use the certification mark on the produce since the date of notification of suspension. The information about the suspension and withdrawal/cancellation of certifications shall be made publicly available on CB's Web site.

There are provisions to revoke suspension upon satisfactory verification of corrective actions by the certification body and the producer/group confirms compliance with criteria requirements.

Revocation/Cancellation – The CB shall revoke/cancel the certificate when there is any contravention of the terms and conditions of certification by the producer; or there is repeated non-compliance and inability to take corrective actions beyond six months; or the certificate has remained under suspension for more than six months; or if requested by a certified producer who cannot maintain compliance.

6.4 Renewal of certification

The certification is granted for a period of three years with annual surveillance, subject to no sanctions. The certification shall be renewed at the end of the three years. The renewal process and the renewal of certification decision shall be taken prior to expiry. If the auditee fails to allow the CB to conduct a surveillance audit, the certificate validity shall expire at the end of the first year. When a certificate is not renewed, it shall expire at the end of the validity period.

6.4 Changes affecting certification

The CB needs to communicate any changes in the GAP scheme to all certified producers. These shall be implemented within reasonable or specified timelines and verified by the CB.

The certified producer is also required to inform the CB in case of change in location / cultivation practises / change of product or any other on-farm processes that, based on their nature, may require verification by the CB. The changes may be endorsed in the certificate after they have been duly verified and confirmed.

Extension and/or reduction of scope – This requires a formal application by the producer for inclusion of additional producer crops/ or extension or reduction of members as applicable

in a group certification scenario. The CB shall evaluate and decide on extension of the scope, and record the decision with its justification.

7. Certification fees

A fee may be charged to the producer/group for various activities of the certification scheme, without any discrimination between units, geographical location, and size of the unit etc. The CB's fee structure shall be publicly accessible and also be provided on request.

8. Records

Certification related records shall be retained for two certification cycles. If the certification scheme involves complete re-evaluation of the produce within a determined cycle, records shall be retained at least for the current and two more cycles. A documented policy and procedures for the retention of records to demonstrate that all certification process requirements have been effectively fulfilled shall be in place.

- i) The records shall be kept confidential. Records shall be transported, transmitted and transferred ensuring maintenance of confidentiality.
- ii) The certification records shall include records for all producers, including all producers that submitted applications, and all producers evaluated, certified, or with certifications suspended or withdrawn/cancelled. Related records necessary to establish the credibility of the certification, such as evidence of the competence of evaluators, technical experts, evaluators, review personnel, evaluators and decision-makers, continuation of certification, etc. as relevant.

9. Complaints and appeals

The CB shall have a documented procedure for handling of complaints and appeals received from all stakeholders, producers, customers, etc. The procedure should include receiving, acknowledging, recording, evaluating the complaints/appeals and establishing the validity of the complaints/appeal through investigations and taking decisions. The complaints / appeals shall be recorded and tracked as well as actions undertaken to resolve them. Once the appeal findings are reached, the appellant should be informed of the outcome along with the reasons for the decisions. Complaints should be addressed in a similar manner.

The procedure for handling of complaints shall be made available to the public on the CB's Web site and shall also be easily accessible on demand.

The complaints and appeals should be handled independent of personnel involved in the complaint/decision being appealed against.

10. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 326 – 357).

EXERCISE 3 QUIZ

45 minutes

Tick the correct answer

1. High risk crops are:
 - a. those grown on land assessed as having risks
 - b. produce such as sprouts and cut fruits
 - c. all of the above
 - d. none of the above.
2. The food safety module has:
 - a. 11 elements and 88 practices
 - b. 13 elements and 30 practices
 - c. all of the above
 - d. none of the above.
3. For growing GMO crops:
 - a. special requirements are to be followed
 - b. there is no special requirement applicable
 - c. none of the above.
4. For practising GAP:
 - a. there will be no restriction with respect to environmental requirements
 - b. the national environmental policy shall be followed
 - c. none of the above.
5. With respect to domestic animals:
 - a. there should be restriction on their movement in the production and produce handling areas of the farm
 - b. no restriction of their movements required as they can graze the wild plants
 - c. none of the above.
6. Integrated pest management:
 - a. should totally replace chemical pesticides
 - b. should be practised to minimize the use of pesticides
 - c. all of the above
 - d. none of the above.
7. Records of GAP should be kept for:
 - a. 2 years
 - b. more than 2 years if required by legal requirements
 - c. all of the above
 - d. none of the above.
8. Training on application of pesticides:
 - a. shall be required for every handler of the chemicals and application equipment
 - b. will not be required for the producer even if she/he does the work
 - c. all of the above
 - d. none of the above.

9. Product traceability and recall:
 - a. shall be mandatory for GAP practising farmers
 - b. may not be implemented by individual farmers
 - c. all of the above
 - d. none of the above.
10. MSDS of all pesticides:
 - a. shall be available on the farm
 - b. shall be available on the farm for highly toxic chemicals
 - c. none of the above.
11. Internal control systems (ICS) shall be applicable for:
 - a. individual producers
 - b. producer groups
 - c. all of the above
 - d. none of the above.

Write True (T) or False (F)

1. Hepatitis A is a bacterial disease.
2. There shall be a pre-decided time gap between a pesticide spray and harvesting of the fruit crop.
3. Harvesting should be done at the coolest time of the day.
4. Planting material should be purchased from a certified nursery.
5. It is not necessary to comply with all criteria classified as critical.
6. Scheme owner can be anybody recognized (nominated) by the government of the country.
7. Scheme owner may have only one committee for implementation of the GAP scheme in the country.
8. Certification body shall be set up in accordance with ISO/IEC 17065.
9. Independent third party audit is necessary for GAP certification.
10. Corrective action on nonconformity is necessary on the part of auditee prior to considering grant of certification by the certification body.
11. Scheme owner shall be a legal entity.
12. Auditor/inspector of the certification body for GAP auditing should be a person having an academic background related to agriculture/horticulture.
13. An auditor shall not carry out an audit of his own activity.
14. All documents used by a producer/group for GAP and its certification shall be controlled by the certification body.
15. All records used by a producer group can be controlled by itself.
16. The producer/group shall be a legal entity.
17. Confidentiality and impartiality are interchangeable terms.
18. There shall be a procedure for dealing with complaints by the certification body.
19. There shall be a mechanism available to the scheme owner for dealing with appeals against actions/decisions of the steering committee.
20. GAP standard can be mandatory or voluntary as decided by the country.

Session 16 Auditing and auditing techniques

60 minutes

1. Session objectives

The objectives of this section are to understand the requirements of auditing as a part of GAP certification and the auditing techniques.

2. Contents

- Introduction to auditing
- Basic concepts and terminology
- The audit process (audit initiation/planning, audit preparation, audit execution, audit reporting, follow-up and corrective action).

3. Why audit?

Audits are carried out to collect objective evidence for making an informed judgement about the compliance status of the systems or process being audited against the requirements of the criteria or a standard. Auditing is recognized as a powerful technique used by trained persons for obtaining evidence to ensure the adequacy of operations and assist in the achievement of the objectives of any organization.

4. Terminology and definitions

4.1 Some of the terms frequently used in auditing and in this session are explained below:

- Audit – systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.
- Audit evidence – records, statements of fact or other information that is relevant to the audit criteria and verifiable.
- Audit criteria – a set of policies, procedures or requirements used as a reference against which audit evidence is compared.
- Audit findings – results of evaluation of collected audit evidence against audit criteria.
- Audit client – the organization or person requesting an audit.
- Audit programme – the arrangements for a set of one or more audits planned for a specific timeframe and directed towards a specific purpose.
- Audit plan – a description of the activities and arrangements to be carried out for an audit.
- Auditee – the organization being audited

Note: An audit programme is for a certain period, say three years for GAP certification by a CB. It answers the following questions: what does a CB intend to do in each audit?

Which locations will be audited and when? If multiple sites are involved, when will each audit be done? A plan is formulated for each audit.

5. Principles of auditing

As per ISO 19011, the activity of auditing is associated with a number of principles. These principles make an audit an effective and reliable tool in support of management policies and controls, by providing information on which an organization can act in order to improve its performance. Adherence to these principles is a prerequisite for providing audit conclusions that are relevant and sufficient and for enabling auditors, working independently from one another, to reach similar conclusions in similar circumstances.

There are six principles of auditing.

- i) *Integrity* – an auditor should be of high integrity, able to carry out auditing in a professional manner, without any conflict of interest or bias in delivering the assigned work.
- ii) *Fair presentation* – an auditor should have the obligation to report truthfully and accurately the audit findings.
- iii) *Due professional care* – the application of diligence and judgement in auditing. Judgement shall be based on factual data, information and evidence obtained during the process of auditing when compared with the audit criteria, specified requirements or the standard.
- iv) *Confidentiality* – maintenance of confidentiality and impartiality are basic requirements of the auditor.
- v) *Independence* – an auditor shall not audit his/her own work or own area of work. An auditor's independence in carrying out the work is the basis of the impartiality of the audit and helps in maintaining the objectivity of audit conclusions.
- vi) *Evidence-based approach* – auditing is an activity of collecting only objective evidence in a systematic manner. The evidence is evaluated for determining the extent of fulfilment of the audit criteria in a rational manner for reaching reliable and reproducible audit conclusions.

6. Concept of auditing

Audit programmes are planned and managed to ensure that audits are effective and consistent and the conclusions are credible. Audits are conducted using established methods and techniques. Objectivity, independence and a systematic approach are essential. The scope, objectives and criteria are clearly defined and agreed prior to commencing the audit. Audit team members and audit programme managers need to have competence for the tasks and act with due professional care and adhere to a code of ethics. The relationship between the audit team, the auditee and the audit client is one of confidentiality, discretion and cordiality.

7. Managing an audit programme

7.1 The principles of PDCA (Plan – Do – Check – Act) are applied when executing an audit programme.

The first step is to establish the objectives of the audit as a part of planning activity. Then as part of the planning, the audit programme is chalked out including selecting the auditors, considering their competence for the particular assignment. The next step is to implement the audit programme by actually auditing activities. When carrying out an audit activity, monitoring of the work being performed is done as a means of checking whether the planned programme is being put into place. Finally, a review is undertaken of the entire activity including the plan that has been put into place and improvements as deemed fit are introduced.

7.2 Audit objectives

The objectives of an audit are defined and decided before commencing with the actual auditing work and these may include:

- determination of the extent of conformity of the management system to be audited, or parts of it, with the audit criteria;
- determination of the extent of conformity of activities, processes and products with the requirements and procedures of the management system;
- evaluation of the capability of the management system to ensure compliance with legal and contractual requirements and other requirements to which the organization is committed;
- evaluation of the effectiveness of the management system in meeting its specified objectives; and
- identification of areas for potential improvement of the management system.

The audit objectives may be based on the management's priorities, its commercial intentions, management system requirements and regulatory requirements. It is NOT an objective of any audit to find faults in the systems audited.

7.3 Audit scope

The audit scope defines the extent and boundaries of an audit. It typically refers to the physical location of the organization to be audited, the units of the organization, its areas/sections, the activities of the organization as well as its units and the time period for the audit.

7.4 A reference base / Audit criteria

The criteria refer to what is required to be audited. It may include a standard(s), a management system standard or a technical specification that could be a client specific standard. The criteria for audit could be stated policies or objectives, for example quality policy of the client and also the quality objectives. Technical regulations or national legislations and regulations can also serve as audit criteria. The criteria for audit of a CB can be ISO 17065:2012, the GAP standard and the GAP scheme requirements and also the documentation prepared by the CB based on the standards and the scheme.

7.6 Frequency of audit

The frequency of any audit will depend on the status and importance of activities, significant changes in management of the organization or its policies, changes in the quality management systems or other management systems for evaluation of the effectiveness of corrective actions or in the case of frequent customer complaints.

7.7 Audit schedule

The preparation of the audit schedule shall take into consideration the issue of sampling. Generally, random sampling is done if any other sampling plan is not specifically mentioned in the specifications, standards or regulations when the documentation is studied at the preparatory stage. However, for the purpose of selection of sample and to decide about the duration of an audit the following should be considered:

- a) the criticality of the activity to be audited;
- b) the number of persons involved in the activities/areas to be audited;
- c) the complexity of the processes / activities;
- d) the activities that are frequently carried out;
- e) the activities that are less frequently carried out;
- f) the results of previous audits; and
- g) complaints.

7.8 Team composition

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When deciding about the number of auditors, the requirements of qualifications, knowledge (technical as well as auditing techniques), experience and seniority shall be considered and the independence of the auditors will be ensured. Such independence is especially applicable in the case of internal audits.

7.9 Auditor competence

The basic requirements to decide about the competence of an auditor are generic knowledge and skills with respect to audit principles, methods, procedures, management system requirements as well as sector specific knowledge and skills including knowledge about the standard(s), applicable legal/contractual requirements and the person's ability to apply knowledge and skill to achieve the intended results of the audit.

7.10 Personal attributes of auditor

An auditor should possess certain personal attributes in addition to academic and professional qualifications, skill and competence to enable her/him to act in accordance with the principles of auditing. The auditor should be ethical, open-minded, diplomatic, tactful, observant, perceptive (able to understand quickly a situation), versatile (adjustable), tenacious (persistent), morally courageous, self-reliant, decisive, organized, open to improvement, culturally sensitive and collaborative (interactive).

7.11 Preparation of a checklist

A checklist is a series of key requirements that need to be verified by seeking objective evidence. A checklist is NOT a set of questions to be asked. A good checklist will help to keep the audit on track, ensure that all the key facts are verified and provide a base from which to investigate activities. There are two types of checklists, namely a criteria checklist that refers to the clauses of the standard and an audit checklist that is a combination of criteria requirements, procedures, standard operating procedures, work instructions etc.

7.12 Audit strategies

There are two types of audit, namely the vertical audit and the horizontal audit. In the vertical audit, one area of activity of the auditee is selected and that is audited. For example, when auditing the quality manager, the manager's functions with respect to document control, record control, complaints, internal audit and management review are audited by an auditor. In the horizontal audit, one procedure, for example document control, is selected and all three areas (quality manager, application reviewer and evaluator of audit reports) are audited against the procedure. The audit strategy is decided depending on requirements of the audit client.

8. Audit execution

The actual process of the audit is executed with an opening meeting, followed by an audit when gathering of information and collection of objective evidence is carried out. The validation of information and evaluation is the next step. A closing meeting is held after preparation of the report.

8.1 Opening meeting – The opening meeting is held with the auditee's management or where appropriate with those responsible for the functions or processes to be audited. The audit objectives and scope are explained. The audit plan is reviewed. The modus operandi of the audit is explained as well as the reporting procedures. Any clarification is either sought or provided.

8.2 Collecting Information – Audit evidence can be obtained through examination of documents and records, observation of activities, and interviewing staff. Evidence that can be stated, documented, quantifiable, qualifiable, verifiable, not influenced by emotion or prejudice and unbiased is objective evidence. The mechanism of an audit is to observe, ask and check, in the order indicated. The auditing tools are:

- examination of documents, records, samples;
- verification of evidence through observation;
- interviews – when verifying, interviewing working personnel is done;
- asking questions – questions asked when verifying the evidence for gathering further information; and
- observation – when interviewing or asking questions, the auditor shall continuously observe the activities being performed.

The result of utilizing the above tools will be objective evidence.

Interview technique

Interview the right person, who actually does the job. The interview should be in a congenial environment. Interviewing a person while he is operating a machine should never be done as it may create an unsafe situation or because of loud noise or high sun it will be uncomfortable both for the auditor and the person being interviewed.

Speak to the person in the language understood by the person. First put the interviewee at ease. Explain your purpose in a polite, friendly but business-like manner.

Find out what the interviewee is doing. While talking, be observant, accurate and tactful. Do not look down while conducting the interview. Speak clearly. Do not confuse. Ask one question at a time. Make the question simple so that it can be understood. Listen to the person after asking a question. Rephrase the question if it is not understood. Come back if information is not available immediately.

Collecting evidence

Follow a sequence of steps and collect the evidence in case there is a problem. The steps should be to check what is being done, why it is being done, who is responsible for doing it, how are they doing it, where it should be done. Observe if the procedure is being followed and check the records for evidence.

Questioning

Questioning is a skill. The auditor should always ask open-ended questions. This type of questions will result in details coming out in the form of an answer from the auditee. It will enable the auditor to ask further questions and collect the evidence vital for the audit. On the other hand, asking close-ended questions will result in either the answer being "yes" or "no". Thereafter, it becomes difficult to open up the subject and ask for further details. Close-ended questions may be used for clarifying or as leading questions. Close-ended and hypothetical questions shall generally not be asked. It is said that the auditor has seven friends, namely – what, why, when, how, where, who and finally can you show me.

Follow a trail

An audit is usually carried out on a random sampling basis unless otherwise decided, based on the client's requirements. An auditor should select a sample, either from documents or a physical issue and commence collecting information/evidence following the process from beginning to end. During the procedure, the actual process need be observed, records verified to see whether all activities performed, controls are in place, effective and finally whether compliances with the requirements are being achieved.

Evaluation of evidence

The evidence collected during the process of the audit shall be evaluated against the audit criteria to ascertain the degree of compliance. The audit criteria could be GAP criteria, requirements of ISO 17065:2012, documented procedures, standard operating procedures, conditions of contract etc. The output will be the evaluated audit findings. If non-compliance with audit criteria is observed, it will be called nonconformity. The potential non-compliances are reported as observations/concerns and can be taken by the auditee as opportunities for improvement.

How to draw conclusions

The audit findings shall be evaluated to ascertain to what extent the documented system addresses the requirements of the audit criteria. Whether the documented system has been put into practice by the auditee organization and to what degree the documented system practiced in the organization is effective. It also requires to be concluded whether the nonconformities raised indicate a particular area(s) of weakness in the organization. If it is prevalent this indicates a system failure.

8.3 Closing meeting

The audit team shall have a formal meeting with the auditee and the key persons involved in the audit exercise representing the auditee. The auditee will be thanked for the arrangements made for the convenience of the audit. The scope of the audit shall be explained presenting the strengths and weaknesses of the system. A summary of audit findings shall be placed explaining the nonconformities and the need to undertake corrective action. The area for improvements shall also be explained. Finally, the auditee shall be informed of the conclusions and recommendations of the audit team.

9. Reporting

The report of audit carried out shall explain the scope and objectives of the audit. The details of compliances with evidence, the nonconformities, concerns and opportunities for improvement shall be provided. The agreement with respect to corrective actions shall be included in the report. Confidential information, proprietary details shall not be mentioned in the report. Any issue which is not a subject of the audit or is irrelevant such as reporting trivial matters and statements reflecting emotions and prejudices shall not be a part of the report.

10. Corrective action

Corrections are done to mitigate the cause of nonconformity. The nonconformity is identified during the audit and established after evaluation by the auditor. There shall be a system with the auditee for initiating immediate action for correction by the person responsible for controlling the activity after observation and reporting of any nonconformity by the auditor. In order to prevent recurrence of the nonconformity, a responsible person shall carry out a root cause analysis and take corrective action. The auditee shall decide upon a time period by which correction and corrective action shall be completed. The actions taken shall have to be verified by a follow up audit.

11. Improvements

The audit results should be analyzed and form the basis for determining preventive actions. Such action is taken for preventing any occurrence of a nonconformity. The auditee shall also identify areas for continual improvement. These will be inputs for subsequent management reviews.

12. Training slides

The training slides on this session are given in **Annex 2** (slides 359 – 425)

Exercise 4: Auditing

45 minutes

1. The participants will be divided into groups, each group will consist of 4 to 6 persons. Given below are the findings of an audit. The groups will analyze the findings and then do the following:
 - Evaluate the situation and decide if it complies with the GAP standard or if nonconformities (NCs) exist.
 - If there are NCs, determine which clause of the GAP standard the NCs do not comply with and what action should be taken.
2. The four modules given in the GAP standard and the checklists should be referred to.
3. One person from each group will then report to all the participants.

Audit finding No.1

Situation – During an audit you were verifying how the producer does the harvest operation. The crop is cauliflower. The crates containing harvested cauliflower were kept on the soil. One of the harvesters obviously has a cold and is frequently sneezing while at work. The producer has a pet dog. It is accompanying the producer and playing in the field. To show how well the dog is trained the producer tells one of his harvesters to throw a harvesting knife for the dog to fetch. After the harvester throws the knife the dog fetches the knife and returns it to the harvester.



Audit finding No. 2

Situation – During the audit you were verifying how pesticides are stored. The producer is a small farmer having 2 hectares of land. He has kept all liquid pesticides in a metal box, locked, with a warning sign pasted on the box, and written in the local language is the word “pesticide”. He has kept all powder pesticides in a separate box in the same manner.



Audit finding No. 3

Situation – During an audit you were checking the toilet and observed the toilet to be very clean. There was a hand washing facility and liquid soap was available. Instead of a bucket,

there was an empty container bearing the label “chloropyrifos”. The container was well cleaned and it was evident that the container was at least 3 or 4 years old.

Audit finding No. 4

Situation: In the procedure for handling complaints, you find written that the complaint will be addressed at the earliest possible opportunity.

Audit finding No. 5

Situation – During the audit of a group on 02/05/2015, it was observed that when investigating the procedure for product recall and withdrawal, everything was explained in detail in the relevant document and the document was dated 03/02/2014.

Audit finding No. 6

Situation – During an audit of you found that the leaves of the crop were wet. The producer informed you that his spray operator had just finished spraying a chemical on this plot and had moved on to the next plot. You went to that plot to view the spray operation and observed that the spray operator was wearing protective clothing, gum boots, goggles, mask and a proper cap covering the head.



Audit finding No. 7

Situation – During an audit you were verifying the fertilizer application records. The recommendation from the concerned authority is to apply urea @ 50 kg per hectare in split doses with an interval of 15 days between each application.

Case 1: The records show that on the first application the producer applied 25 kg per hectare, after 16 days 10 kg per hectare and again after 15 days 15 kg per hectare. When you asked why instead of 15 days interval the second application was done on the 16th day the farmer replied that it was raining on the 15th day.

Case 2: The application records show that first application was 20 kg per hectare, after 16 days 20 kg per hectare and again after 15 days 20 kg per hectare. When you asked why instead of 50 kg urea per hectare the application was 60 kg per hectare, the farmer replied that adding more urea would increase the production.

Audit finding No. 8

Situation – During an audit you observed that sewage water is allowed to flow into a field of mango trees. You asked the producer about it. The producer explained that the sewage water will be infiltrated through the soil and that as no fruits are touching the ground and three months before harvest the sewage water will be stopped there is no risk to the crop.

Audit finding No. 9

Situation – During an audit you asked how the spraying equipment is cleaned after use? The farmer replied that the sprayer is taken to a nearby stream after spraying and since there is plenty of water the sprayer can be cleaned very well there.

Audit finding No. 10

Situation – The spray records show that a pesticide was used at a dosage of 3ml/litre of water and the label recommendation for that pesticide is 2ml/litre of water. The agriculture extension officer of that location had recommended using the pesticide as per the instruction on the label. You asked why the dosage was exceeded.

Case 1: The operator replied that the pest attack was very high, so a higher concentration was used to help control the pest more effectively.

Case 2: The operator replied that the dosage was fixed for a high volume sprayer which requires 450 litres of water per hectare. He brought in a new sprayer which needs only 300 litres of water per hectare. He used 3ml pesticide /litre of water to maintain the total dosage as per the recommendation on the label.

Audit finding No. 11

Situation – You observe a portable pump set with the farmer. On questioning, the farmer explains that the pump was used during night hours to draw water from the nearby river to irrigate his/her land. The farmer produces the water analysis report that shows the water is suitable for irrigation and further informs you that water was drawn from the river during the night so that the authorities will not notice.

Audit finding No. 12

Situation – You find that a crop had been sprayed on the day of an audit. When asked who did the spraying the farmer replies that she/he usually does the spraying but today as the farmer is with the auditor one of the workers was asked to do the spraying work. The training records for the farmer on spraying operations are evident. However, the training records of the person who did the spraying are not available.

Module V Preparing a farmer/ producer or producer group for GAP

Session 17 Preparing the farmer/ farmer groups for implementing GAP

45 minutes

1. Session objectives

The objectives of this session are to ensure that trainees understand:

- how a producer/producer group needs to go about implementing the GAP requirements including developing the procedures and maintaining records;
- how to establish and maintain the internal control system of the producer group;
- how the producer group management registers producers and ensures that the system of implementation of GAP is being followed by them.

2. Contents

- i) Requirements for GAP implementation
- ii) Documentation requirements
- iii) Requirements for records
- iv) Internal control systems – establishment and maintenance
- v) Registration of producers by producer group and ensuring that the system of implementation of GAP is being followed by the producer.

3. Requirements for producers/groups

“Producer” means a farmer engaged in GAP for production of fruits and vegetables. “Group” means more than one farmer. The group will have collective responsibility for implementing the GAP requirements. Five sets of requirements need to be implemented by producer/group, namely:

- i) Country’s GAP standard requirements.
- ii) The requirements specified by the certification body, namely documentation, procedures for certification etc.
- iii) Requirements as applicable in the country where the farm is located, for example regulations about the use of water, pest control chemicals, waste management, labour laws. If the produce is exported to another country, the regulations as applicable with respect to the produce in the country shall also be applicable. For example, regulations about produce quality, such as maximum residue limits of pesticides in the produce, plant quarantine laws.
- iv) Requirements specified by the customer with respect to the produce.
- v) Producer’s own set of requirements for ensuring implementation of the system, its control and for effecting continual improvement mainly in the internal control system, documentation and records.

4. Implementation of GAP

The implementation of GAP requirements needs to be consistent, effective and demonstrable. This can be done by consistently understanding the GAP requirements, encouraging the management of producer(s), their personnel or those of the group. Documentation should be developed in line with the requirements of the GAP standard, ISO 17065, the scheme owner and also the certification body. When developing documentation, applicable regulatory requirements shall be kept in consideration and all persons concerned in the production chain should be trained to understand the requirements of the GAP standard, the scheme for certification and new aspects to be implemented. A review of the system, practices and records shall be done at planned intervals

by the management of the producer/group and based on the findings corrective actions should be taken as well as actions to ensure continual improvement.

5. Documentation

5.1 Documents required for GAP implementation

Documentation includes four levels, described below and shown in the diagram. The manual is the apex level of documents and formats lie at the lowest level. The manual and procedures will guide the producer or producer group on the processes or what needs to be done and how to do it. The records prepared after application of procedures, standard operating procedures, checklists and utilizing the given formats will reflect what has been done on a daily/periodic basis. The records will provide useful information for producers or producers group for their own recollection as well as demonstrate that requirements have been implemented. Documents will depend on the GAP scheme that the producer or producer group would like to be certified against and the option that the producer chooses for certification – producer or producer group. Unnecessary documents or documents with too many details may not be efficient and only the required information should be given.

Levels of documents

- Level 1 – A manual that outlines the entire operation to be followed by producers or producers group and how it is to be managed.
- Level 2 – Procedures that give a guideline of how to perform a management system related function, for example, procedure to conduct a review.
- Level 3 – Standard operating procedures or instructions that give specific instructions on how to do a specific task, for example, cleaning of spraying equipment.
- Level 4 – Checklists (these are generally a list of points to remember or an “aide memoire”). Formats (give the structures on which details are to be filled) and records (give the information about work performed).



Documents for GAP implementation include those required by the GAP scheme, the certification body for producers or producers group and management system documents. Documents required under the GAP scheme will normally consist of: farm plan/ property map, risk assessment record, personal hygiene instructions, waste management plan, job responsibility, cleaning, pest control plan, and quality plan (for produce quality module).

Quality plan

A quality plan contains the process steps involved in cultivation, harvesting and post-harvest handling of the fruits and vegetables. The quality hazards and quality loss that can happen if something goes wrong during each process step are specified in the plan. The causes of quality loss are also a part of the plan as well as the good agricultural practices (GAP). GAP at each process step are the control measures, monitoring activities and record keeping as needed to prevent or minimize the risk of occurrence of a quality hazard.

5.2 Documents required by a certification body

The documents required for an individual producer include application form and details of produce and farm whereas for a producers group these include management and internal control system documents, namely procedures for internal audit, management review, document control,

record control, corrective action, identification and traceability, revocation/ withdrawal, and subcontracting.

The above documents required for a producers group are also referred to as management systems documents. Individual producers may maintain such documents giving evidence of having adopted uniform practices same as a producers group following the internal control system.

5.3 Documents required by group from producer

Every producer shall maintain uniform practices as a member of the group. Evidence of adopting such practices can be observed from the study of documentation maintained by each producer, namely information about farm, farm plan/ property map, risk assessment record, personal hygiene instructions, waste management plan, job responsibility, cleaning, pest control plan, quality plan (for produce quality module).

5.4 Control of documents

A procedure for document control shall be prepared, implemented and maintained with periodic review. The requirements for control of documents include the need for all documents to be approved, current versions to be identifiable with document number, approval date, volume number and page number. They are to be distributed to the people who should have these and any changes are to be reapproved by the same authority that initially approved them. Obsolete documents are to be removed from circulation and replaced by the latest versions. The formats of records and operational procedures, which are also documents, shall be controlled. Documents of external origin, meaning those prepared by organization(s) other than the producer or the group, shall also be identified and maintained in a controlled manner, for example the GAP standard.

5.5 Control of records

All record formats preferably have to be approved. The current record format shall be uniquely identifiable (numbered), legible and in use. Changes to records shall not be permitted without authorization and reason for change. The records shall be retrievable. Records need to be retained for a predefined time period, for example, ASEAN requires keeping records for two years. Examples of records that need to be kept as evidence of GAP implementation include farm plan record, risk assessment records, planting material record, irrigation records, chemical procurement, usage and inventory record, spraying record, pest and disease monitoring record, post-harvest chemical record, chemical authorization form, fertilizer and soil additives record, harvesting and packing record, job responsibility and training record, cleaning and pest control plan, calibration records, incident investigation records, complaints and corrective action report, traceability (delivery and destination) records, etc.

6. Implementation of internal control system (ICS) by producer group

6.1 A producer group will be required to implement an internal control system if it wants to apply for certification. The internal control system of the producer acts as a local (internal) certification body with a defined system and records. Implementation is best done following the plan-do-check-act (PDCA) cycle, which requires implementation bit by bit and sustaining the work done before implementing the next set of requirements and then following the cycle again.

Plan – understand the requirements and plan to implement these and conduct training to bring about awareness to the personnel working on the farm.

Do – implement these requirements.

Check – verify whether the requirements are being implemented effectively (could be done with a checklist).

Act – depending on the above findings, take corrective actions to make improvements or close gaps.

The **basic activities for implementation** are as follows:

- Identify qualified personnel for ICS and ensure that they have training on both GAP and ICS development.
- Identify farmers who want to participate in the GAP certification scheme and support their awareness/ training on GAP.
- Develop criteria and conditions for ICS and relevant documents/ forms to be included in the ICS manual (initially simple).
- ICS staff to be fully aware of all minimum requirements prior to initial audit.
- All documents (criteria and conditions, working procedures, forms, etc.) and operations of ICS staff are to be gradually improved over time.

6.2 ICS requirements

6.2.1 Legal entity

Documentation shall be available establishing the producer group as a legal entity covering its ownership, administrative structure, management, production and demonstrating the relationship among producer members of the group.

6.2.2 Organizational structure

There should be adequate human resources for group operations. An organizational structure needs to be available indicating the ICS coordinator (ICS manager), internal inspectors/ auditors, their roles and responsibilities, identification of committees to impose sanctions, review corrective actions, responsibilities for packhouse operations (if applicable), etc. A person should be made responsible for each procedure or task of the ICS and staff should be aware of their responsibilities and qualified for the job. There should be sufficient qualified internal auditors. There needs to be a qualified person (“GAP approval manager”) or certification committee. Training of farmers in GAP farming is crucial so the position of field officer (extension specialist or field advisor) is very important. The ICS personnel must not have any conflict of interest that might hinder the work.

Training is important both for ICS personnel and farmers. The ICS personnel associated with GAP implementation/certification needs to be adequately trained and competent. The competency and training requirements should be documented. Each internal auditor needs to receive at least one training course per year by a competent person.

Training of farmers should be organized to improve their knowledge and understanding of GAP and about certification requirements.

6.2.3 Producer register

All farmers under the system shall be registered. A register shall be maintained, containing data about each group (member): name, contact person, address, farm data sheet (crop and production area), quantity of expected produce, date of internal audit, status of certification, sanction details etc. A contract (commitment) shall be signed between each farmer and the ICS operator in a language understood by the farmer. An overview map (village/ community map) showing each farm location shall be available. The farm data sheet shall be updated periodically incorporating the changes.

6.2.4 Written contract

A contractual agreement between each producer member and the group shall be established. Non-registered members cannot join the group. The agreement shall cover farm details,

obligations to comply with GAP requirements, technical guidance, sanctions and any internal requirements of the group.

6.2.5 Risk management

Basic risk assessment – A detailed initial risk assessment (RA) shall be done to identify risks at farm level, during purchasing, processing or (export), transporting, as long as the product is under the responsibility of the ICS operator. The ICS shall cover all measures to minimize the identified risks.

Continuous risk management

The initial RA is the first step toward raising awareness of critical aspects to be covered in the ICS and identifying the critical control points. It is recommended to repeat the RA exercise regularly. The ICS operator needs to be aware of critical control points.

6.2.6 ICS manual/ Quality manual

An ICS manual is a prerequisite for group certification. The manual should contain an overview of the GAP scheme including an overview of participating farms, their agricultural practices of farmers as well as about purchasing, handling and exports – all the steps that take place from production to harvest until final sale of the product to another entity. The manual shall contain the management structure, policy, working procedures, documents, scope of certification, available approvals etc. The manual needs to be available to members of the GAP approval committee and internal auditor and available upon request to farmers/operators/organizations that are parts of the scheme. The manual needs to be reviewed at a planned frequency and updated when necessary with changes communicated to all concerned. Whenever there is any change in farm data, the farm data sheet should be updated or a new farm data sheet should be created. The procedure for document control, record control and control of documents of external origin shall be implemented.

6.2.7 Internal GAP standard

The internal GAP standard is the reference standard for internal control. It specifies the scope of certification, includes the farm production requirements complying with relevant external regulations/standards. It should be presented in a form that the ICS staff can easily understand. The requirements of the internal standard and the practical implications for the farmers should be communicated clearly to them in the local language. The internal standard should address the production units/crops under farm management and certification, the farm practices (e.g. seeds, fertilization, sustainable soil management, plant-protection) and the harvest/post-harvest procedures. Under the scope of certification, all regulations/standards pertaining to GAP certification need to be listed in the ICS manual.

6.2.8 Internal producer and production sites inspections

Each registered farmer is to be assessed at least once a year by qualified internal auditors and this should be done in the presence of the farmer or his/her representative. The visit should include the entire farm including storage of inputs, harvested products and a brief check of post-harvest handling. The visit needs to be documented in the farm audit checklist and signed by the internal auditor and the farmer or his/her representative. If any major non-compliances (NCs) are found, these are reported immediately to the ICS manager and measures taken as per internal sanction procedures.

6.2.9 Documentation of the ICS

The ICS ensures that internal control is documented and all documentation of each certified farmer is available for audit. An auditor shall carry out auditing of the documents and records.

6.2.10 Product traceability and segregation

A product traceability system shall be established by the group and implemented uniformly by its registered producers, ensuring that no mixing of GAP produce with non-GAP produce takes place. The harvesting area shall be managed in such a manner that prevents any mixing of GAP produce with non-GAP produce. The mechanism of traceability and segregation shall be implemented at all stages of production, right from procurement of planting material, use of inputs during production, through post-harvest handling, storage and distribution.

6.2.11 Withdrawal of non-conforming certified produce

A procedure shall be established, documented and implemented for withdrawal of non-conforming produce, their handling and disposal. Implementation of the procedure shall be annually tested for its effectiveness, correction and corrective action if required and improvement.

6.2.12 Registration of additional certified producers or sites

Whenever there is any addition or withdrawal of any producer and site(s) owned by the producer with respect to the original list of registered producers of a group, the group's records shall be immediately updated and the certification body informed.

6.2.13 Common packhouse

There may be one or more common packhouses receiving produce from members of a group, then handling, packing, storing and dispatching the produce to market. The entire requirements related to the packhouse shall be complied with by each of such common packhouses. Procedures shall be documented, established and implemented including provision for regular monitoring of the activities of common packhouses by the group on matters related to GAP. The procedure shall also include provision for periodic inspection/audit by the group.

6.2.14 Agreement with buyer

There shall be an agreement in place between the group and buyer to prevent misuse of GAP certification and the certification mark at the buyer's end.

6.2.15 Sub-contracting

When any of the services of the group or any of the producers is sub-contracted to another agency/organization, the particular member and the group shall ensure the following prior to allowing the contracted work to commence:

- that facilities available with the sub-contractor comply with GAP certification requirements;
- that the competency of the sub-contractor has been assessed with respect to GAP requirements and records maintained;
- that the contract between the producer/group and the sub-contractor will contain a provision that the sub-contractor shall comply with the group's relevant procedures for quality management systems when carrying out the operations/services; and
- that such a sub-contracted unit can always be subject to external audit by the certification body.

6.2.16 Purchasing, handling, processing, export

A procedure shall be documented, established and implemented for addressing situations such as when a producer of the group or the group itself decides to buy produce from a producer not registered with the group, then to ensure integrity of the produce with respect to the GAP standard and certification requirements in all steps of produce flow and to prevent mixing between GAP and non-GAP produce. The procedure shall:

- i) have requirements to ensure the integrity of GAP produce when purchasing from a farmer/ producer so as not to mix non-GAP with GAP products;
- ii) have storage, handling and processing procedures with the basic aim of ensuring the GAP status of the produce and compliance with respective documented requirements;
- iii) ensure that central processing units are always subject to full external audit by the certification body;
- iv) ensure that the purchasing, handling and processing personnel have an important role and responsibility in ensuring correct purchasing of GAP produce from farmers. It may be necessary to specifically assign a GAP warehouse manager who understands the GAP handling procedures. If there is a processing unit operated by the ICS operator it may be necessary to specifically assign a GAP processing manager for the same.

6.2.17 Internal quality management system (QMS) audit

An internal audit of QMS should be carried out at least yearly by a qualified internal auditor. An internal audit procedure shall be established to include a review of internal inspection reports, documenting the status of each producer under the group's control. The procedure shall include a review of formats in use and amendments, if required, following the document control procedure. Records of review and follow up action taken shall be maintained. The competency of the internal auditor shall be defined and assessed at defined intervals through and the results of the assessment sent to the certification body.

6.2.18 Internal approvals, non-compliances, corrective actions, sanctions and infringement

There shall be a procedure for internal approval of the farmer when audit findings indicate satisfactory operation of the ICS and relevant aspects. Another procedure shall be defined to address corrections, corrective actions when a nonconformity has been observed/reported. The procedure should suitably address taking appropriate corrections, corrective actions, mitigating measures and improvements. A third procedure shall be defined for actions that need to be taken when sanctions have been imposed on the group/ producer. Records shall be prepared using the approved format and maintained for the stipulated period.

6.2.19 Complaint handling

A documented procedure shall be established, implemented for handling complaints, including receiving, issuing acknowledgement, causative analysis, investigation and redressal including communication to complainant. The procedure shall also have a provision of identifying the person to handle complaints and address the responsibility with a time schedule for delivering redressal. Records of all complaints shall be maintained appropriately.

6.2.20 Management review

A review of the internal control system shall be undertaken at defined intervals, at least once in a year. The inputs for review shall include: internal/external audit results, feedback from different sources, preventive/ corrective actions, follow up of previous reviews, changes in standards/ regulatory requirements of the country where production is done, changes in standards/regulatory requirements of the country where produce is sold/traded and appeals/complaints made, etc. The outputs of the review shall include decisions/ actions on improvement of the systems as well as improvement in the producer group with respect to the requirements of the standard and resource needs.

Records of such a review shall be maintained.

7. Farm control and approval procedures

7.1 Registration of new farmers (producers)

All farmers under the system (those to be certified) need to be formally registered as GAP farmers with the group. The total area under the management of each farmer, crops and areas under each crop and basic farming methods need to be recorded on a farm data sheet. A commitment declaration (contract) shall be signed between each farmer and the group in a language understood by the farmer. An overview map (village or community map) shall be available showing each farm's location. If farm data changes considerably, a new farm data sheet shall be submitted to the group and files updated.

7.2 Describe practices

The practices being undertaken for implementation of GAP requirements, details of inputs used for production, monitoring mechanisms of the operations, stages of crop growth, pest – diseases infestation status, if any. Details shall be prepared with respect to records being maintained and plans for preventing contamination of produce during storage, transportation, plans for control of maximum residue limits of pesticides in produce and any other information required by the certification body as part of an application. The practices shall also include:

- a) Crop rotation plans: each rotation used and how often.
- b) Soil fertility management programme: how nutrient toxicity will be prevented and how soil fertility will be monitored.
- c) Soil conservation practices, including methods for preventing soil erosion and monitoring soil conservation.
- d) Water quality practices, including methods to minimize water contamination, protect water quality including management of irrigation and run-off water, and how the effectiveness is monitored.
- e) Weed management plan, including problem weeds, weed control methods, and evaluative methods to measure and monitor the success of the plan.
- f) Pest management plan, including work with a pest control adviser, whose contact information should be available. The plan must include methods for controlling pest damage to crops, a record of all pest control products used and intended for use, the frequency of pest monitoring etc.
- g) Plan for planting, tilling, spraying, and harvesting, including list of equipment to be used.

7.3 List of inputs

A list shall be prepared of each substance used, including its ingredients, source, and where/in what context it will be used. Proof shall be kept that the inputs are approved for use on crops cultivated. Labels and material safety data sheets (MSDS) of all plant protection chemicals and other toxic chemicals shall be kept.

7.4 Monitoring practices

The examples of other practices to demonstrate that the produce is safe and which show the monitoring mechanisms are:

- a) Records of plant petiole analysis, soil analysis etc.
- b) Test results to document nutrient deficiencies and demonstrate if micronutrient applications are needed.
- c) Good maintenance records for all equipment and tools used.
- d) Notes on problem crop diseases, prevention strategies used, a record of inputs used and intended for use, the evaluated effectiveness of the programme, methods for monitoring effectiveness of the programme, and the frequency of disease monitoring.
- e) Plans for integrated pest management (IPM).
- f) If compost is made on-farm, then maintenance of records of composting.

7.5 Describe record-keeping system

The GAP scheme requires that the producers maintain a transparent and traceable record-keeping system. Given below are examples of records that need to be maintained:

- a) Records regarding seeds, seedlings and other planting materials.
- b) Invoices/ bills of all products purchased for use.
- c) Records of all plant protection product application.
- d) Records of all fertilizer/ soil conditioners used.
- e) Records of any other products used during crop production including herbicides and plant growth regulators.

7.6 Describe steps for preventing contamination

- a) If producing both certified and non-certified foods, demonstrate that the growing areas, seedlings/plants, harvest and storage areas, and input practices (including watering) for each are separate and non-contaminating.
- b) List in detail all crops and produce, where they are stored, grown and applied, and the totals for certified and non-certified production.
- c) Describe how transportation of the certified produce takes into account steps to protect the integrity of the produce and protect it against contamination.
- d) Specify how crop storage will segregate certified material from non - certified produce, and how storage units are cleaned, pests (rodents and insects) are controlled and damage caused by them prevented, and how any stored crop inputs are used or planned to be used.
- e) Explain how contamination with non-certified material will be prevented in processing, packaging, and shipping materials.
- f) Show steps taken to protect crops from contamination during harvest and describe use and material of produce containers and explain any potential contamination problems that may occur with the harvest of crops.
- g) Specify adjoining land use, location, type of buffer area, width of buffer, use of any crops in the buffer area, safeguards used to protect crops from contact with buffer and buffer crops during harvest, other safeguards used to prevent accidental contamination, signs posted, and the methods and frequency of monitoring for crop contamination.

7.7 Describe plan to prevent incidence of MRL being exceeded

- a) Always follow technical advisers' instructions.
- b) Do not apply any plant protection products near to expected date of harvest.
- c) Based on the pruning/planting/seeding date or based on experience note the approximate expected date of harvest on the plant protection products (PPPs) records so that there is awareness that the pre-harvest interval (PHI) falls at least ten days before the expected date of harvest.
- d) When applying any PPP to crops check that the first possible date of harvest never crosses the expected date of harvest.
- e) Check before harvest that the PHI is complied with.
- f) Check for the MRL compliance before harvest (not mandatory).
- g) Always use an ISO17025 accredited laboratory for residue analysis (not mandatory).

7.8 Additional information as requested by the certification body

Additional information may be required by the certification body. If there are any doubts, it is best to include the information in the farm plan so that the producer and the agent can work together before the inspection takes place.

8. Selection of a CB by the producer group

The certification body (CB) to be selected by a producer group shall have GAP certification within its defined scope of activity. The CB may be a governmental body or a private entity or a voluntary organization. The CB shall be an accredited body, which will underline its acceptability to interested parties within the country or abroad. An accredited CB gives confidence to the producer group as well as the consumer about its credibility for the purpose of certification.

A criterion for selection of a CB could be the target market of GAP certified products. A CB better known in the target market should be selected for enabling the group in its marketing activities.

Another basis of selection of the CB could be its approach to the auditing. A CB with a positive approach is preferred as it aims to improve the farmer's compliance with specified requirements. The objective of such a CB during its audits is not to find non-compliances just for the sake of it.

The important requirements for selecting a CB, apart from any or all of the above mentioned requirements, are impartiality, confidentiality and competence. The CB should be able to demonstrate that maintaining impartiality and confidentiality are its primary concerns and that it has the requisite competence to deliver the services.

A CB found to be most cost-effective apart from the aforementioned criteria should be selected.

9. Training slides

The training slides in relation to this section are given in **Annex 2** (slides 427 – 486).

Session 18 The application and approval process – the farmer's perspective

Session time: 30 minutes

1. Session objectives

The objectives of this session are to understand:

- the rights and obligations of producers;
- how to apply for certification;
- how the certification body evaluates the producer/producer group and grants certification and how the producer should react to the assessment and certification; and
- the benefits of GAP implementation and certification to the producer.

2. Contents

- Rights and obligations of producers intending to obtain GAP certification
- Application for GAP certification
- Important aspects of certification by the CB and how the producer needs to address these – review of application, evaluation off-site and on-site, nonconformities (critical, major, minor) and corrective actions, report and review, certification decision and grant of certificate
- Benefits of certification to the producer.

3. Rights and obligations of producers intending to obtain GAP certification

The certification body (CB) shall provide the prospective applicant producers with an up-to-date detailed description of the evaluation and certification processes and procedures, and the documents containing the requirements for certification, the applicants' rights and the duties of producers of certified produce (including fees to be paid by applicants and suppliers of certified produce). These shall be consistent with the certification scheme offered by the CB as per its accreditation scope. This will help the producer to understand clearly what is to be done at various stages to meet the CB requirements.

Rights and obligations of producer will include:

Rights

- to timely services from the CB;
- to appeal against the CB's decision;
- to apply for both individual and group certification but not for the same produce;
- to cancel application with the CB or request for temporary suspension; and
- to change a CB provided corrective actions are taken and reply of cancellation received from the previous CB.

Obligations

- to accept auditing plan and requirements of the CB;
- to apply for both individual and group certification but not for the same produce;
- to treat the CB's decision as confidential;
- to comply with GAP certification requirements as well as CB provisions; and

- to notify the CB of changes to the production status, for example name of produce, quantity of produce, inclusion or withdrawal of group member producer for producer group certification, etc.

4. Applicant under certification

The applicant under the certification scheme is the producer who can be classified into two categories, namely individual producer and producer group. A group shall consist of two or more producers, each with a legal status.

5. Application for GAP certification

5.1 The producer should adopt GAP and implement it on the farm(s) for at least three months and conduct self-assessment before applying for certification. The checklist developed under the GAP scheme should be used for the self-assessment. The application shall be made on the prescribed format.

When applying for certification, general information will have to be furnished by the producer, to include name, address, contact details, details of land held and whether under ownership/ lease, and proof of legal entity or certified identity, and details of workforce.

In addition, production information will need to be furnished with the application to include type of produce, whether greenhouse or field production, production site, single harvest/ multiple harvest, annual production area and length of time the area has been under cultivation.

If the producer/group has been previously certified, the relevant details of the certification shall be furnished.

5.2 Review of application by CB for adequacy within defined time limit

The application shall be reviewed by a competent person of the CB. The review shall be done in a timely manner and completed within the defined time limit. Only applications completed in all respects shall be accepted. If deficiencies are observed on review, the applicant shall be immediately notified so that corrections can be made. An application found acceptable for further evaluation shall be acknowledged with an identification number (ID) allotted to the producer. When an application has been rejected because of not complying with requirements, a fresh application can be made after an interval of one year. If during the period of review of the application or later, information is received about the producer being involved in misuse of the GAP certification mark or having been convicted by a court for any reason of relevance to GAP and the certification scheme, the applicant may be disqualified.

The producer needs to ensure completeness of applications, that any corrections needed are submitted promptly and follow guidance for the use of the logo or certification mark so as not to attract disqualification.

5.3 Evaluation

The CB shall proceed for evaluation after a producer has been registered with the allotment of an ID. The steps are pre-assessment or pre-evaluation (optional step), off-site review, farm evaluation, audit observations.

The producer needs to ensure that if there is any objection to an auditor, the CB is informed in advance. The audit observations are given to the producer at the end of site evaluation and nonconformities (NCs) are explained in simple understandable language. The producer may seek clarifications if NCs are not clear

5.4 Inspection duration and timing

The inspection duration and timings are based on certain guidelines as below:

i) Inspection duration :

- An operation without produce handling or on-farm packing – a minimum of three hours on site.
- An operation with on-farm packing – a minimum of 6 hours.
- An operation with produce handling – a minimum of one day (8 hours).
- QMS audit for group certification – a minimum of 8 hours for a group with less than 50 members and one centralized packhouse.

ii) Inspection timing

- It is ideal to carry out evaluations during harvest time of fruits and vegetables so that actual harvest and post-harvest handling of crops, their storage and transportation practices can be evaluated by auditors and it will be possible to verify all control points.
- For control points that are not possible to inspect, a follow-up visit may be scheduled or satisfactory proof shall have to be submitted by the producer.

The producer needs to ensure that the duration and timings are followed and that he/she addresses the NCs and submits appropriate proof of this to the CB.

5.5 Report and review

The evaluation report and non-compliances

- a) The evaluation report contains the observations, findings and conclusions vis- a-vis the evaluation objectives and farm management plan.
- b) The report is independently reviewed by a competent person in the CB.
- c) Verification of actions on all control points are done during the review. Any lapses are communicated to the auditor/inspector for re-checking.
- d) The corrections and corrective actions taken on NCs shall be verified for satisfactory compliance before recommending the granting of certification.

Non-compliances observed during evaluations are recorded and explained to the producer with advice on corrections and corrective actions.

The producer needs to understand the NCs clearly and address them suitably.

6. Certification decision and grant of certificate

i) Certification decision

- a) It is the sole responsibility of the CB and shall be taken by persons independent of the evaluation process. A committee may be constituted for the purpose of increasing credibility. Impartiality and absence of conflict of interest amongst the members of the committee shall be ensured by the CB for certification decision-making.
- b) A decision to grant a certificate is taken only after all control points have been checked and all NCs closed after duly carrying out verification by audit/inspection.
- c) Producers shall be informed in writing immediately of the reasons for the decision if the CB refuses to grant certification.

ii) Granting of certificate

The certificate format shall contain the details of producer, group, its validity and the scope of certification.

iii) Directory of certified producers

The CB needs to display the directory of valid certifications/list of suspended and cancelled certificates on its Web site.

The producer needs to ensure that her/his name and details are correctly entered on the certificate and appear in the directory and Web site correctly. In case a grant of certification is refused, the producer should see if the reason is correct and if not an appeal can be made.

7. Complaint handling and appeal for farmers

Handling of complaints

The producer has the right to complain to the CB against its decisions or the actions of its personnel in connection with matters related to GAP certification. The CB shall have a documented procedure for handling such complaints and communicate the procedure to the producer/ producer group. The procedure shall also be made available to the public on the Web site of the CB.

The procedure of the CB shall include a mechanism for receiving and recording the complaints and providing a receipt thereof. It shall also address the task for assessment, investigation and making decisions on complaints. The CB shall have a system to monitor and track all received complaints, as well as the actions undertaken to resolve them. The decision on the complaint shall be based on the findings of the CB and the corrections and corrective actions taken. After the decision is communicated to the complainant the complaint may be closed.

The CB shall ensure confidentiality of the complaint when processing it so that the business and other interests of the complainant are not harmed.

Appeals

The farmer may appeal directly regarding any decision taken by the CB or the SO. After receiving an appeal from an appellant (producers or producer groups) on a decision by either the CB or SO, a receipt shall be issued to the appellant. The CB/SO shall create a record of the appeal after which an independent investigation shall be carried out and all necessary information gathered for establishing the validity of the appeal. Based on the findings, the response or actions to be taken shall be decided. An independent appeals panel may be constituted for looking into the appeal and deciding/recommending appropriate actions to be taken.

The CB and SO shall take due care in handling of appeals and inform the producer/ producer group on the steps to be taken if the appellant is dissatisfied with the decision taken by the appellate team.

8. Benefits of GAP – implementation/ certification

GAP adoption and certification offers three primary benefits: (1) economic risk reduction; (2) improved opportunities for market access; and (3) improved safety and quality fresh fruits and vegetables. These are explained below.

Economic risk reduction – Although GAP and third-party certification do not guarantee food safety, they do reduce the risk that a food-borne disease outbreak will originate on the farm. The risk of large economic losses, such as a catastrophic drop in sales (especially if contaminated produce is traced to the farm's operations), damage to the farm's reputation, and potential lawsuits is also reduced with GAP adoption and certification. However, the benefit from risk reduction accrues to the grower only in the event of an outbreak. To estimate the economic benefit of GAP adoption and certification more accurately, a grower needs to calculate the farm's potential economic losses in case of an outbreak, both with and without GAP certification. Accurately estimating the probability of an outbreak is practically impossible, so the benefit of GAP certification often depends on the grower's own perception of the outbreak risk.

Another important, but subtle, benefit of GAP adoption and certification is what economists call the "positive externality" effect to the entire fresh-produce industry. Each grower who becomes certified reduces his or her farm's risk of spreading food-borne illness and, therefore, lowers the risk of an outbreak that affects the entire community of growers. In contrast, if a grower does not adopt GAP and doesn't become certified, when an outbreak is traced back to his or her farm, both the non-compliant producer and the industry as a whole suffer, which is known as the "negative externality" effect.

Improved opportunities for market access – GAP certification opens markets for producers to expand sales to major supermarket chains, school systems, restaurants, and other market outlets. Many retailers and food service buyers now require third-party GAP certification as a condition of purchase. It is recognized that the risk to growers could be reduced by requiring them to have third-party certification for GAP. Although producers could conceivably conduct their own food safety and GAP audits, third-party audits by reputable companies, individuals, or groups or certification bodies are more credible. An important issue for growers is finding a reputable or accredited third party to do the GAP certification.

Improved safety and quality – One of the major benefits of implementing GAP is the improved safety and quality of the products. GAP enables identifying the hazards during production and post-harvest stages and addressing these through implementation of good practices in terms of pest control measures, hygienic practices, use of approved chemicals and in quantities appropriate to the practices recommended, proper storage practices among others, thereby improving the safety and quality of the produce. It also facilitates traceability of the produce to farm level through maintenance of appropriate records and a labeling system so that in the event that the produce is found to contain any contaminant or hazard, it can be traced back to the farm and the reasons or causes of any contaminant or hazard investigated and appropriate actions taken for rectification.

Weighing against the potential benefits of GAP adoption and certification are the costs, which are often immediate and sometimes large. When a grower decides to have a third-party certification, the first step is to implement GAP in the production process. Costs of adopting GAP can include large capital investments, such as water purification equipment, or more moderate expenditures, such as training workers to improve hygiene and upgrading record-keeping technologies. There is no "one-size fits all" set of practices that allow growers to become automatically GAP certified. Growers are free to choose the most cost-effective

combination of practices to satisfy GAP requirements. Therefore, two growers in different areas with different environmental conditions could both adhere to GAP principles and be certified, but use different methods to do so. Another important immediate cost of third-party GAP certification is hiring the certifier. Typically, growers hire third-party firms to first evaluate the food safety systems in their operations and suggest ways to meet GAP guidelines. An evaluation would include the documentation necessary to assure continuous compliance with GAP. Once they implement GAP, growers can decide to have their operations certified by third parties or periodically audited for compliance.

GAP actually won't increase consumer demand for fresh produce unless growers let buyers know that they have taken steps to improve food safety on their farms. Consumers usually have no way to know whether or not fresh produce is grown with GAP. Third-party GAP certification offers a way for growers to let buyers know that they follow appropriate food safety practices on their farms. Growers must measure the economic cost against the benefits before deciding whether to pursue certification.

9. Training slides

The training slides on this session are given in **Annex 2** (slides 487 – 507).

Session 19 Evaluation and feedback

15 minutes

Evaluation form

Feedback on the effectiveness of the Regional Consultation Workshop

Name _____

Country _____

1. How do you evaluate the quality of the Workshop in general?

- i. Excellent
- ii. Very good
- iii. Adequate

2. Was the subject of the Workshop useful and relevant to your needs?

- i. Very useful
- ii. Somewhat useful
- iii. Not useful

3. Do you feel that the Scheme and training manual on GAP for fruits and vegetables will be useful and relevant information?

- i. Very useful
- ii. Somewhat useful
- iii. Not useful

4. Were the Country presentations useful and relevant?

- i. Very useful
- ii. Somewhat useful
- iii. Not useful

5. Did you find the Group work sessions relevant and useful?

- i. Very useful
- ii. Somewhat useful
- iii. Not useful

6. Did you find the Field visit relevant and useful?

- i. Very useful
- ii. Somewhat useful
- iii. Not useful

7. Do you feel that the Recommendations will be useful to your country

8.

- i. Very useful
- ii. Somewhat useful
- iii. Not useful

9. Were the organizational arrangements up to your requirements

Consultation material	Yes/No
Food and accommodation	Yes/No
Venue	Yes/No
Social programme	Yes/No

Any comments

10. Any other recommendations/comments/suggestions for improvements

Please fill and return the proforma during day 3 by 15:00 hours.

Annex 1 A

Training of stakeholders on the GAP scheme for fruits and vegetables

Day 1	
08:30 – 09:00	Registration
09:00 – 09:30	Opening session
Module I Introduction to GAP	
09:30 – 10:15	Session 1 Background to food safety and introduction to GAP
10:15 – 10:45	Session 2 Different GAP standards – GLOBALG.A.P. and other GAPs
10:45 – 11:00	Tea/coffee break
Module II The GAP standards/requirements	
11:00 – 11:30	Session 3 An overview of GAP standard
11:30 – 12:15	Session 4 Food safety module
12:15 – 12:45	Session 5 Environmental management module
12:45 – 13:30	Lunch break
13:30 – 14:00	Session 6 Workers' health, safety and welfare module
14:00 – 14:30	Session 7 Produce quality module
14:30 – 15:15	Session 8 General requirements module (including group controls)
15:15 – 15:30	Tea/coffee break
15:30 – 16:00	Exercise 1: GAP review – Questionnaire
16:00 – 16:30	Session 9 GAP verification criteria, control points and checklists
16:30 – 17:15	Exercise 2: Checklists
Day 2	
08:30 – 09:00	Recap of Day 1
Module III Establishment of national implementation systems	
09:00 – 09:30	Session 10 Options and structure for implementing GAP in a country
09:30 – 10:00	Session 11 Guidance for establishing a scheme owner
10:00 – 10:15	Tea/coffee break
Module IV GAP certification and accreditation	
10:15 – 10:45	Session 12 Importance of GAP certification and accreditation
10:45 – 11:15	Session 13 Criteria for selection of an accreditation body for GAP
11:45 – 12:30	Session 14 Establishment of a certification body for GAP

11: 45 – 12:30	Session 15 GAP certification process
12:30 – 13:15	Lunch break
13:15 – 13:45	Exercise 3: Quiz
13:45 – 15:00	Session 16 Introduction to auditing
15:00 – 15:30	Exercise 4 : Auditing
15:30 – 15:45	Tea/coffee break
Module V Preparing a farmer/ producer or producer group for GAP	
15:45 – 16:30	Session 17 Preparing the farmer/ farmer groups for implementing GAP
16:30 – 17:15	Session 18 The application and approval process
17:15 – 17:30	Session 19 Evaluation
17:30 – 18:00	Concluding session

Annex 1 B

Training of trainers on the GAP scheme for fruits and vegetables

Day 1	
09:00 – 9:30	Registration
9:30– 10:00	Opening session
Module I Introduction to GAP	
Module I Introduction to GAP	
10:00 – 10:45	Session 1 Background to food safety and introduction to GAP
10:45 – 11:00	Tea/coffee break
11:00 – 11:30	Session 2 Different GAP standards – GLOBALG.A.P and other GAP
Module II The GAP Standards/requirements	
Module II The GAP standards/requirements	
11:30 – 12:00	Session 3 An overview of GAP standard
12:00 – 13:00	Session 4 Food safety module
13:00 – 14:00	Lunch break
14:00 – 14:45	Session 5 Environmental management module
14:45 – 15:30	Session 6 Workers' health, safety and welfare module
15:30 – 15:45	Tea/Coffee break
15:45 – 16:30	Session 7 Produce quality module
16:30– 17:30	Session 8 General requirements module (including group controls)
Day 2	
09:00 – 09:30	Recap of day 1
09:30 – 10:30	Exercise 1: GAP review – Questionnaire
10:30 – 10:45	Tea/coffee break
10:45 – 12:00	Session 9 GAP verification criteria, control points and checklists
12:00 – 13:00	Exercise 2: Checklists
13:00 – 14:00	Lunch break
Module III Establishment of national implementation systems	
14:00 – 14:45	Session 10 Options and structure for implementing GAP in a country
14:45 – 15:30	Session 11 Guidance for establishing a scheme owner

15:30 – 15:45	Tea/Coffee break
Module IV GAP certification and accreditation	
15:45 – 16:45	Session 12 Importance of GAP certification and accreditation
16:45 – 17:15	Session 13 Criteria for selection of an accreditation body for GAP
Day 3	
09: 00 – 09:30	Recap of day 2
09:30 – 10:00	Session 14 Establishment of a CB for GAP
10:00 – 10:30	Session 15 GAP certification process
10:30 – 10:45	Tea/coffee break
10:45 – 11:30	Exercise 3: Quiz
11:30 – 13:00	Session 16 Introduction to auditing and auditing techniques
13:00 – 14:00	Lunch break
14:00 – 14:45	Exercise 4: Auditing
Module V Preparing a farmer/ producer or producer group for GAP	
14:45 – 15:45	Session 17 Preparing the farmer/ farmer groups for implementing GAP
15:45 – 16:00	Tea/Coffee break
16:00 – 16:45	Session 18 The application and approval process
16:45 – 17:00	Session 18 Evaluation
17:00 – 17:30	Concluding session

Annex 1 C

Training programme for auditors/inspectors on the GAP scheme for fruits and vegetables

Day 1	
09:00 – 9:30	Registration
9:30– 10:00	Opening session
Module I Introduction to GAP	
10:00 – 10:45	Session 1 Background to food safety and introduction to GAP
10:45 – 11:00	Tea/coffee break
11:00 – 11:30	Session 2 Different GAP standards – GLOBALG.A.P and other GAP
Module II The GAP standards/requirements	
11:30 – 12:00	Session 3 An overview of GAP standard
12:00 – 13:00	Session 4 Food safety module
13:00 – 14:00	Lunch break
14:00 – 14:45	Session 5 Environmental management module
14:45 – 15:30	Session 6 Workers' health, safety and welfare module
15:30 – 15:45	Tea/coffee break
15:45 – 16:30	Session 7 Produce quality module
16:30– 17:30	Session 8 General requirements module (including group controls)
Day 2	
09:00 – 09:30	Recap of Day 1
09:30 – 10:30	Exercise 1: GAP review – Questionnaire
10:30 – 10:45	Tea/coffee break
10:45 – 12:00	Session 9 GAP verification criteria, control points and checklists
12:00 – 13:00	Exercise 2: Checklists
13:00 – 14:00	Lunch break
Module III Establishment of national implementation systems	
14:00 – 14:45	Session 10 Options and structure for implementing GAP in a country
14:45 – 15:30	Session 11 Guidance for establishing a scheme owner
15:30 – 15:45	Tea/coffee break

Module IV GAP certification and accreditation	
15:45 – 16:45	Session 12 Importance of GAP certification and accreditation
16:45 – 17:30	Session 13 Criteria for selection of an accreditation body for GAP
Day 3	
09:00 - 09:30	Recap of day 2
09:30 – 10:00	Session 14 Establishment of a certification body for GAP
10:00 – 10:30	Session 15 GAP certification process
10:30 – 10:45	Tea/coffee break
10:45 – 11:30	Exercise 3: Quiz
11:30 – 13:00	Session 16 Introduction to auditing and auditing techniques
13:00 – 14:00	Lunch break
14:00 – 14:45	Session 16 Auditing (contd.)
14:45 – 15:30	Exercise 4: Auditing
15:30 – 15:45	Tea/Coffee break
Module V Preparing a farmer/ producer or producer group for GAP	
15:45 – 16:15	Session 17 Preparing the farmer/ farmer groups for implementing GAP
16:15 – 16:45	Session 18 The application and approval process
16:45 – 17:00	Session 19 Evaluation
17:00 – 17:30	Concluding session

Annex 2 Training Slides



Training Course on

GOOD AGRICULTURE PRACTICES (GAP) FOR FRUITS AND VEGETABLES

VOLUME 2 OF A SCHEME AND TRAINING MANUAL ON GOOD AGRICULTURE PRACTICES
(GAP) FOR FRUITS AND VEGETABLES

1

Opening Session

Introduction to the training course, resource persons and Participants

2

Objectives of this Session

To introduce the training course, the resource persons and the participants

3

Training Objectives

The objectives are broad based – depend on requirements of stakeholders:

- Support in building quality infrastructure and institutional capacity in countries with respect to GAP for fruits and vegetables – standards and certification system in line with international standards;
- Train persons of SO and CB for development of auditing and inspection skills;
- Raise awareness of stakeholders including farmers and producers about GAP for fruits and vegetables;
- Enable trainers to support producers wishing to implement GAP with a focus on certification aspects; and
- Transfer knowledge gained on successful practices in countries of the region.

4

Learning Outcomes

Participants should be able to:

- support government or SO in establishing a quality infrastructure in the country with respect to GAP for fruits and vegetables – both standards and certification system -in line with international standards;
- assist producers (individuals and producer groups) to implement GAP including management of an ICS in relation to certification requirements;
- lead teams attempting to consolidate strategies for quality and safety programmes and initiatives in relation to GAP and also with regard to certification including aspects of auditing; and
- organize training and awareness raising courses on GAP, tailored to the needs of the country with a focus on certification.

5

About the Training Material

Training Manual

- A teaching tool for training/ raising awareness of governments, farmers, trainers, consultants, auditors/ assessors and others about GAP for fruits and vegetables;
- Can be used by governments or SOs to build quality infrastructure and institutional capacity in countries with respect to GAP for fruits and vegetables – standards and certification systems in line with international standards; and
- A resource material for promoting food safety, produce quality, environmental sustainability and socially acceptable practices

This manual provides information to support the delivery of the training course.

6

Structure of the Manual (5 Modules, 18 Sessions)

Module I Introduction to GAP

Session 1 Background to food safety and introduction to GAP
Session 2 Different GAP standards – GlobalG.A.P./ other GAPs

Module II The GAP standards/requirements

Session 3 An overview of GAP standard - structure, requirements and conformity criteria
Session 4 Food safety module
Session 5 Environmental management module
Session 6 Workers' health, safety and welfare module
Session 7 Produce quality module
Session 8 General requirements module (incl. group controls)
Session 9 GAP verification criteria, control points & checklists

Module III Establishment of national implementation systems

Session 10 Options & structure for implementing GAP in a country
Session 11 Guidelines for establishing a Scheme Owner

Module IV GAP certification and accreditation

Session 12 Importance of GAP certification and accreditation
Session 13 Criteria for selection of an AB for GAP
Session 14 Establishment of a CB for GAP
Session 15 GAP certification process
Session 16 Auditing and auditing techniques

Module V Preparing a farmer/producer or producer group for GAP

Session 17 Preparing the farmer/ farmer groups for implementing GAP
Session 18 The application and approval process

7

About the Training Material

- Can be used to meet need of stakeholders - 3 courses designed namely: (example in next slides)
 - "Training of stakeholders on GAP Scheme for fruits and vegetables" – Annex 1A; "Training of Trainers on GAP Scheme for fruits and vegetables" – Annex 1B; and
 - "Training for auditors/inspectors on GAP Scheme for fruits and vegetables" – Annex 1C
- The programme for stakeholders is of 2-day duration and other 2 programmes each are of 3-day duration
- The programme may be selected according to need
- The information in manual includes: notes and power point presentation for each session and references/ other information sources
- Additional information will be provided during the training

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ANNEX 1A

Training of Stakeholders on GAP Scheme for fruits & vegetables - DAY 1

08:30 – 09:00 **Registration**
09:00 – 09:30 **Opening Session**
Module I Introduction to GAP
09:30 – 10:15 **Session 1** Background to food safety and introduction to GAP
10:15 – 10:45 **Session 2** Different GAP standards – GlobalG.A.P./other GAPs
10:45 – 11:00 Tea/coffee break
Module II The GAP standards/requirements
11:00 – 11:30 **Session 3** An overview of GAP standard - Structure, requirements and conformity criteria
11:30 – 12:15 **Session 4** Food safety module
12:15 – 12:45 **Session 5** Environmental management module
12:45 – 13:30 Lunch break
13:30 – 14:00 **Session 6** Workers' health, safety and welfare module
14:00 – 14:30 **Session 7** Produce quality module
14:30 – 15:15 **Session 8** General requirements module (including group controls)
15:15 – 15:30 Tea/coffee break
15:30 – 16:00 **Exercise:** GAP Review – Questionnaire
16:00 – 16:30 **Session 9** GAP verification criteria, control points and checklists
16:30 – 17:15 **Exercise:** Check Lists **DAY 2**

9

ANNEX 1A

Training of Stakeholders on GAP Scheme for fruits & vegetables - DAY 2

08:30 – 09:00 Recap of Day 1
Module III Establishment of National Implementation Systems
09:00 – 09:30 **Session 10** Options & Structure for implementing GAP in a country
09:30 – 10:00 **Session 11** Guidance for establishing a Scheme Owner
10:00 – 10:15 Tea/coffee break
Module IV GAP Certification and Accreditation
10:15 – 10:45 **Session 12** Importance of GAP certification and accreditation
10:45 – 11:15 **Session 13** Criteria for selection of an AB for GAP
11:15 – 11:45 **Session 14** Establishment of a CB for GAP
11:45 – 12:30 **Session 15** GAP Certification Process
12:30 – 13:15 Lunch break
13:15 – 14:15 **Session 16** Auditing and auditing techniques
14:15 – 15:15 **Group exercise:** Auditing
15:15 – 15:30 Tea/coffee break
Module V Preparing a farmer/producer or producer group for GAP
15:30 – 16:15 **Session 17** Preparing the farmer/ farmer groups for implementing GAP
16:15 – 16:45 **Session 18** The application and approval process
16:45 – 17:00 **Session 19** Evaluation
17:00 – 17:30 **Concluding Session**

Annex 1B

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ANNEX 1B

Training of Trainers on GAP Scheme for fruits & vegetables - DAY 1

09:00 – 9:30 **Registration**
9:30 – 10:00 **Opening Session**
Module I Introduction to GAP
10:00 – 10:45 **Session 1** Background to food safety and introduction to GAP
10:45 – 11:00 Tea/coffee break
11:00 – 11:30 **Session 2** Different GAP standards – GlobalGAP and other GAPs
Module II The GAP standards/requirements
11:30 – 12:00 **Session 3** An overview of GAP standard - Structure, requirements and conformity criteria
12:00 – 13:00 **Session 4** Food safety module
13:00 – 14:00 Lunch break
14:00 – 14:45 **Session 5** Environmental management module
14:45 – 15:30 **Session 6** Workers' health, safety and welfare module
15:30 – 15:45 Tea/coffee break
15:45 – 16:30 **Session 7** Produce quality module
16:30 – 17:30 **Session 8** General requirements module (including group controls) **DAY 2**

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ANNEX 1B

Training of Trainers on GAP Scheme for fruits & vegetables - DAY 2

09:00 – 09:30 Recap of Day 1
09:30 – 10:30 **Exercise:** GAP Review – Questionnaire
10:30 – 10:45 Tea/coffee break
10:45 – 12:00 **Session 9** GAP verification criteria, control points and checklists
12:00 – 13:00 **Exercise:** Check Lists
13:00 – 14:00 Lunch break

Module III Establishment of National Implementation Systems

14:00 – 14:45 **Session 10** Options and structure for implementing GAP in a country
14:45 – 15:30 **Session 11** Guidance for establishing a Scheme Owner
15:30 – 15:45 Tea/coffee break

Module IV GAP Certification and Accreditation

15:45 – 16:15 **Session 12** Importance of GAP certification and accreditation
16:15 – 16:45 **Session 13** Criteria for selection of an AB for GAP
16:45 – 17:30 **Session 14** Establishment of a CB for GAP

DAY 3

12

ANNEX 1B

Training of Trainers on GAP Scheme for fruits & vegetables - DAY 3

09:00 - 09:30 Recap of Day 2
09:30 - 10:30 **Session 15** GAP certification Process
10:30 - 10:45 Tea/coffee break
10:45 - 11:45 **Exercise:** Quiz
11:45 - 13:00 **Session 16** Auditing and auditing techniques
13:00 - 14:00 Lunch break
14:00 - 14:30 **Session 16** Auditing and auditing techniques (contd.)
14:30 - 15:15 **Group exercise:** Auditing
15:15 - 15:30 Tea/coffee break

Module V Preparing a farmer/producer or producer group for GAP
15:30 - 16:15 **Session 17** Preparing the farmer/ farmer groups for implementing GAP
16:15 - 16:45 **Session 18** The application and approval process
16:45 - 17:00 **Session 19** Evaluation
17:00 - 17:30 **Concluding Session**

ANNEX 1C

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ANNEX 1C

DAY 1 Training of Auditors/Inspectors on GAP Scheme for fruits & vegetables

09:00 - 9:30 **Registration**
9:30 - 10:00 **Opening Session**
Module I Introduction to GAP
10:00 - 10:45 **Session 1** Background to food safety and introduction to GAP
10:45 - 11:00 Tea/coffee break
11:00 - 11:30 **Session 2** Different GAP standards – GlobalGAP and other GAPs
Module II The GAP standards/requirements
11:30 - 12:00 **Session 3** An overview of GAP standard - Structure, requirements and conformity criteria
12:00 - 13:00 **Session 4** Food safety module
13:00 - 14:00 Lunch break
14:00 - 14:45 **Session 5** Environmental management module
14:45 - 15:30 **Session 6** Workers' health, safety and welfare module
15:30 - 15:45 Tea/coffee break
15:45 - 16:30 **Session 7** Produce quality module
16:30 - 17:30 **Session 8** General requirements module (including group controls)

DAY 2

14

ANNEX 1C

DAY 2 Training of Auditors/Inspectors on GAP Scheme for fruits & vegetables

09:00 - 09:30 Recap of Day 1
09:30 - 10:30 **Exercise:** GAP Review – Questionnaire
10:30 - 10:45 Tea/coffee break
10:45 - 12:00 **Session 9** GAP verification criteria, control points and checklists
12:00 - 13:00 **Exercise:** Check Lists
13:00 - 14:00 Lunch break

Module III Establishment of National Implementation Systems
14:00 - 14:45 **Session 10** Options and Structure for implementing GAP in a country
14:45 - 15:30 **Session 11** Guidance for establishing a Scheme Owner
15:30 - 15:45 Tea/coffee break

Module IV GAP Certification and Accreditation
15:45 - 16:15 **Session 12** Importance of GAP certification and accreditation
16:15 - 16:45 **Session 13** Criteria for selection of an AB for GAP
16:45 - 17:30 **Session 14** Establishment of a CB for GAP

DAY 3 ...

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ANNEX 1C

DAY 3 Training of Auditors/Inspectors on GAP Scheme for fruits & vegetables

09:00 - 09:30 Recap of Day 2
09:30 - 10:30 **Session 15** GAP certification process
10:30 - 10:45 Tea/coffee break
10:45 - 11:45 **Exercise:** Quiz
11:45 - 13:00 **Session 16** Auditing and auditing techniques
13:00 - 14:00 Lunch break
14:00 - 14:30 **Session 16** Auditing and auditing techniques (contd.)
14:30 - 15:15 **Group exercise:** Auditing
15:15 - 15:30 Tea/coffee break

Module V Preparing a farmer/producer or producer group for GAP
15:30 - 16:15 **Session 17** Preparing the farmer/ farmer groups for implementing GAP
16:15 - 16:45 **Session 18** The application and approval process
16:45 - 17:00 **Session 19** Evaluation
17:00 - 17:30 **Concluding Session**

ANNEX 1C

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Training Etiquettes

Every lecture session will be followed by discussions when questions will be asked or clarifications will be sought.

There will be exercises for better understanding of the subjects being taught

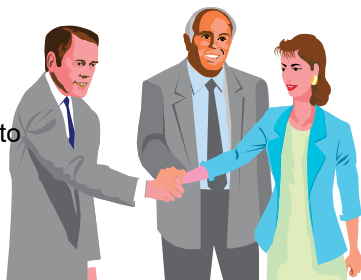
17

- Attendance
- Mobiles – switch off or in silent mode
- Essentials
- Participative
- Administrative arrangements

18

Introductions

- Name/ country/ Organization
- Exposure to GAP specifically in relation to certification/ accreditation
- What are your expectations through this training



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QUESTIONS AND DOUBTS



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MODULE I INTRODUCTION TO GAP

Session 1 Background to Food Safety and Introduction to GAP

Session 2 Different GAP standards – GlobalG.A.P. and other GAPs

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Session 1

Background to Food Safety and Introduction to GAP

22

Session Objectives

- To explain the background and importance of food safety so that participants understand the role of GAP; and
- To introduce the concept of GAP in relation to food safety, produce quality, environmental sustainability and socially acceptable practices

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Contents

- Introduction - globalization and its influence on food safety
- Food safety and food safety concerns
- Food safety approaches – including preventative risk based approach on food safety in the food chain
- Standards, SPS/TBT Agreements and Codex
- Introduction to GAP
- Some FAO regional publications on GAP and related areas

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Introduction

- **Globalization** - increasing demand by consumers for variety of foods
- Creation of global market - **transboundary movement** and trade of food across countries – imports/exports
- Potential for **spread of contamination** high
- Leading to **increasingly new challenges** and risks to the health and safety of consumers
- **Quality, health, safety, environmental issues, labelling, food fraud** acquiring global focus
- **Food safety** - standards, their implementation and certification is becoming increasingly important

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Food Safety – Gaining Importance

- Contributes to improved **nutrition and health status** of population thereby increasing productivity & livelihoods
- Reduces **food losses and wastes** resulting in increased food availability, stability and utilization
- Increasing national and international **market access**
- **Economic implications** – both public health and others

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A Snapshot of Q & Safety



- Residues & contaminants
- Pathogens & spoilage micro-organisms
- Zoonotic diseases
- Technology issues –GMC
- Physical contaminants
- Persistent organic pollutants – eg dioxins
- Food allergens
- Labelling & claims – incorrect, BB date
- Fraud

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E. coli (O104:H4)

Gaurdian 2 June 2011 :E coli outbreak: Russia widens EU vegetable ban - Russia has extended its ban on vegetable imports to all of the EU in a bid to prevent a deadly European bacterial outbreak from spreading into the country. Researchers are still unable to pinpoint the cause of the [E coli](#) outbreak that has hit [Germany](#) & other European countries, infecting 1,500 people & leaving 17 dead.

Sprouts from imported fenugreek seeds caused bloody diarrhea & serious complications



A farmer destroys iceberg lettuce on a field in Germany, where most of the [E coli](#) cases have occurred

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Bangkok Post 26 Jan 2011



- Increase in pesticide use by Thai farmers
- Suggested DoA needs to impose complete ban on carbofuran/dicrotophos/methomyl/EPN
- Thailand imports of pesticides rose from 42,089 tonnes in 1997 to 137,594 tonnes in 2009.
- EU found prohibited chemicals in imported vegetables (basil, chili, Chinese bitter cucumber & bean)
- Fears of a possible EU ban prompted govt to temporary suspend shipments.

"We were warned about chemical-contaminated vegetables 26 times in 2009 & up to 55 times last year," said a member of the Thailand Pesticide Network

29

Hepatitis A in semi-dried tomatoes

- National food incident in Australia triggered in May '09
- 420 cases – March 2009 to March 2010
- Epidemiological link with imported semidried tomatoes processed in Australia
- Tracing back investigation indicated frozen tomatoes imported tested positive for hepatitis A virus (HAV)



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Risk Factors in Foods

Country	Food	Contaminants/ hazards
Bangladesh	Processed foods	food additives including food colours, artificial sweeteners, aflatoxins
Bhutan	Apple/Mandarin	pesticide residues
Lao PDR	vegetables and fruits	pesticide residues, unpermitted food additives
Malaysia	Vegetables	pesticide residues
Nepal	leafy vegetables	pesticide residues, heavy metals , colours
Pakistan	dry chillies	Aflatoxins
	Mango & citrus fruits	Pesticide residues
Thailand	fruits and vegetables	pesticide residues, microbial contaminants
Vietnam	fruits and vegetables	pesticide residues

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Food Safety Approaches



❑ **Food chain approach** – hazards may arise at different stages of the food supply

❑ **Preventative risk-based approach** is followed rather than a reactive one based on sampling & testing (GAP, GMP, HACCP)

❑ **Sound national food control & regulatory** systems essential – standards & implementation

❑ **Codex standards** – referenced as baseline in SPS Agreement

❑ **Roles and responsibilities** for food safety - all actors in the food chain namely- farmer or producer, processor, handlers, government, consumer

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Preventative Approach based on Risk – in Food Chain



❑ Good Practices

- **GMP/GHP** - All practices regarding conditions & measures necessary to ensure safety & suitability of food at all stages of the food chain
- **GAP** – practices that address environmental, eco, social sustainability for on-farm processes & result in safe & Q food

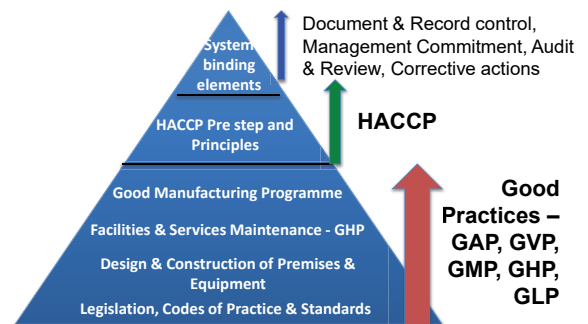
❑ HACCP

- A system which identifies, evaluates & controls hazards (chemical, physical, biological) significant for food safety
- An internationally accepted method to reduce & manage risk

❑ **FSMS** - A holistic system of controls that manage food safety in food business. (GHPs; HACCP; management systems elements & policies; & traceability/ recall system)

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Preventative approaches for food safety include?



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Good Agricultural Practices

Practices that need to be applied on farm to **ensure food safety during pre production, production, harvest and post harvest**. In many cases such practices also help to protect the **environment and safety of the workers**.

A **systematic approach** which aims at applying available knowledge to address **environmental, economic & social sustainability** dimensions for on farm production & post production process, resulting in **SAFE & quality** food & non food agricultural products

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World Trade Organization (WTO)

- Established 1st January 1995;
- the signing of non-tariff agreements, led to the dismantling of barriers to the free flow of trade and opportunities for all countries to benefit from greater access to world markets;
- one of the objective is protection of environment, public health, animal health and plant health;
- To prevent indiscriminate use of standards by governments, WTO laid down rules and disciplines in terms of the non-tariff agreements, namely:
 - the Sanitary and Phytosanitary (SPS) Measures and
 - the Technical Barriers to Trade (TBT)

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SPS agreement

- Governs measures intended to protect human/ animal and plant health or life
- Key Provisions
 - Non discrimination **Article 2.3**
 - Scientific Justification **Article 5**
 - Harmonization (Codex, OIE, IPPC)
 - Higher standards based on risk assessment **Article 3**
 - Equivalence **Article 4**
 - Regionalization/ Disease-free areas **Article 6**
 - Transparency (NNA, Enquiry point) **Article 7**
 - Technical assistance **Article 9**
 - Special & differential treatment **Article 10**
 - Control, inspection and approval procedures **Annex C**

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SPS Article 3 Harmonization

- Encourage use of international standards

Food safety & Animal health



Animal health & zoonoses



Plant health



- SPS permits higher standards based on risk assessment

Codex = Joint FAO/WHO Codex Alimentarius Commission
OIE = World Organisation for Animal Health
IPPC = International Plant Protection Convention (FAO)

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TBT agreement

- Came into force in 1995
- Applies to all products including industrial & agri products, both voluntary standards & technical regulations
- Country has right to adopt voluntary standards & technical regulations (mandatory standards)
 - Avoidance of unnecessary obstacles to trade
 - Non-discrimination & national treatment
- Encourages adoption of international standards
- Code of good practice for standards development
- Equivalence of technical regulations
- Mutual recognition of CA procedures
- Transparency, Tech assistance, Special & diff treatment
- In area of food, agreement applies to issues other than those under SPS Agreement -nutritional claims, labelling requirements.

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Codex Alimentarius Commission

- An Intergovernmental body
- Founded** in 1962 to implement the Joint FAO/WHO Food Standards Programme – jointly hosted by FAO & WHO (1st session 1963) – 50th anniversary 2013
- Membership** - 186 countries + 1 member org (EU) – representing 99% of world population
- Observers**: 220 international organizations:- 50 IGOs, 154 NGOs, 16 UN (representing scientific, industry, trade, consumers)
- Mandate**
 - protect the health of consumers
 - ensure fair practices in international food trade
 - coordinate all food standardization work at the international level

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Organizational Structure of Codex

CODEX ALIMENTARIUS COMMISSION					
Executive Committee			Secretariat		
General Subject Committees (10)		Commodity Committees (12)		ad hoc Intergovernmental Task Forces	
General Principles (France)	Methods of Analysis and Sampling (Hungary)	active		active	
Food Additives (China)	Pesticide Residues (China)	Fish and Fishery Products (Norway)	Processed Fruits and Vegetables (USA)	Animal Feeding (Switzerland)	
Contaminants in Foods (Netherlands)	Residues of Veterinary Drugs in Foods (USA)	Fats and Oils (Malaysia)	Fresh Fruit and Vegetables (Mexico)	dissolved	
Food Hygiene (USA)	Food Labelling (Canada)	Sugars (Colombia)	Spices and culinary herbs (India)	Biotechnology (Japan)	Fruit and Vegetable Juices (Brazil)
Food Import and Export Inspection and Certification Systems (Australia)	Nutrition and Foods for Special Dietary Uses (Germany)	adjourned		Processing and Handling of Quick Frozen Foods (Thailand)	Antimicrobial Resistance (Republic of Korea)
		Milk and Milk Products (New Zealand)	Meat Hygiene (New Zealand)	Regional Coordinating Committees	
		Cereals, Pulses and Legumes (USA)	Vegetable Proteins (Canada)	Africa (Cameroon)	Latin America and the Caribbean (Costa Rica)
		Natural Mineral Waters (Switzerland)	Cocoa Products and Chocolate (Switzerland)	Asia (Japan)	North America and the Southwest Pacific (Papua New Guinea)
				Europe (Poland)	Near East (Lebanon)



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Codex Work on Fruits & Vegetables

- Has two commodity committees on fruits & vegetables
 - fresh fruits & vegetables (CCFFV – host Mexico) &
 - processed fruits and vegetables (CCPFV – host USA)
- Various standards, guidelines, recommended code of practices, standards & MRLs for fresh fruits & vegetables.
 - Special Publication on fresh fruits and vegetables 1st edition (27 Standards on fresh fruits & vegetables)
- Further list of standards related to fruits & vegetables
 - Recommended International Code of Practice for packaging & Transport of fresh fruits & vegetables CAC/RCP 44-1995
 - Code of hygienic practice for fresh fruits and fVegetables CAC/RCP 53-2003
 - MRLs for pesticides (CAC/MRL 1-2009), extraneous MRLs (CAC/MRL 3-2001)

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Who is Responsible?

The Farmer

- Implementing GAP
- Maintaining systems/ records
- Implementing group systems in case of producer groups

The Processor

- production of safe food
- proactive dialogue with regulatory bodies
- Up-grade facility, design system, implement it

Handlers (transporters, storage...)

- Maintaining appropriate conditions

The Government

- enabling environment (scientific, technical, financial, infrastructure, regulatory) favorable to compliance by stakeholders

The Consumer

- demanding safe product;
- following directions for storage & use



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Good Agricultural Practices (GAP)

Focus at two levels

- **Farm level** – practices related to pre harvest preparation, production and harvesting including transport to the pack house
- **Pack House** – practices related to post harvest handling like washing, grading, bunch pruning etc including transport to the customer

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Good Agricultural Practices (GAP)

Focus at farm

(Codex Code of Practices section III – primary production)

- **Environment Hygiene** – related to the soil, water, waste disposal etc.
- **Hygienic Production** – related to fertigation and pesticide spray schedules, irrigation schedule, planting material, storage and handling of Agro and non agro chemicals etc.
- **Handling Storage and Transportation** – related to practices essential to maintain food safety (may also be quality) during handling, storage and transportation
- **Cleaning, Maintenance and Personal Hygiene** – related to cleaning of pack house/storage premises; maintenance of fertigation and pesticide equipment and personal hygiene

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Good Agricultural Practices (GAP)

Focus at Pack House

Codex Code of Practice (Section IV, V, VI VII, VIII, IX and X)

- Design of Pack House
- Control of Operations
- Maintenance & Sanitation
- Personal Hygiene
- Transportation
- Product Information
- Training

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Some regional publications on GAP and related areas



Training manuals

Guidance documents

Case studies

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QUESTIONS AND DOUBTS



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Session 2

Different GAP standards – GlobalG.A.P. and other GAPs

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Session Objectives

- To learn about GlobalG.A.P and other GAP standards at global level; and
- To understand the structure of the GAP standard and the scheme for SAARC countries.

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Contents

1. GAP global scenario, including GlobalG.A.P. standard and GAP in some of the ASEAN countries.
2. GAP in SARRC countries – the standard and the scheme.

51

GAP – Global Scenario

- In many countries Public authority and/or the Private sector have developed their own set of GAP standards
- These are developed for export market and are used for domestic buyers as well
- In some countries these are voluntary standards and in others regulatory (Thailand)
- Compliance to GAP is verified through a certification process

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GAP in the world



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GlobalG.A.P

- Initially known as EurepGAP started in late 1990s as a private sector standard focused primarily on pesticide residues
- Developed by European supermarket chains and their major suppliers
- In September 2007 name changed to GlobalG.A.P
- 92000 certified farmers in 88 countries (in 2008); 123,000 certified producers in 111 countries (in 2012); in 2015 about 150,000 certified producers and more than 140 CBs approved
- The Integrated Farm Assurance Standard Version 5 (V5) to become effective from 1st July 2015.
- Option to produce national interpretation guideline for certification in consultation with local stakeholders



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GLOBALG.A.P V5_July 2015 Structure

A MODULAR APPROACH TO INTEGRATED FARM ASSURANCE (IFA)



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ALL FARM BASED

- Record keeping & internal self assessment/internal inspection
- Site history & site management
- Worker health, safety & welfare
- Waste & pollution management, recycling & re-use
- Environment & conservation
- Complaints
- Traceability
- Visitor safety



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CROP BASED REQUIREMENTS

- Traceability
- Propagation material
- Site history and site management
- Soil management
- Fertilizer use
- Irrigation/fertigation
- Integrated pest management
- Plant protection products



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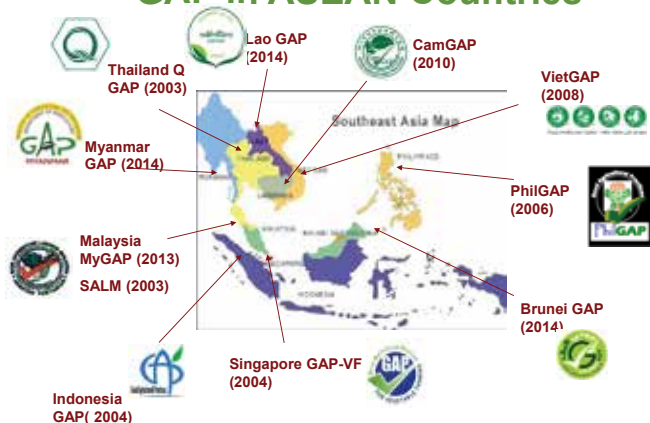
FRUITS AND VEGETABLES

- Propagation material
- Soil and substrate management
- Irrigation/fertigation
- Harvesting
- Produce handling



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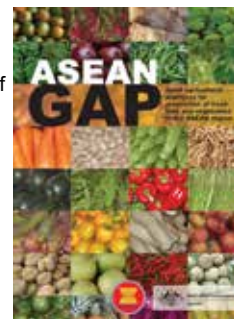
GAP in ASEAN Countries



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ASEANGAP

- ASEAN GAP is voluntary standard for ASEAN countries on production of fresh fruits & vegetables adopted in 2006
- ASEAN GAP regulates the procedures of planting, care, harvesting & post harvest include packaging but does not regulate for sprouts and fresh cut produce.
- ASEAN GAP only applies for production processes & not used to certify for organic or GMO free products
- Four modules - Food safety; environmental management; worker health, safety & welfare; produce quality



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Brunei



Brunei GAP was launched in April 2014 under Horticulture Farm Accreditation Scheme

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Cambodia

- National GAP standard approved by Ministry of Agriculture, Forestry and Fisheries (MAFF) through Ministerial Proclamation No 099 MAFF on 10 March 2010.
- The General Directorate of Agriculture responsible to develop implementation and certification mechanisms for GAP
- The Crop Product Quality and Safety Improvement Office under the Plant Protection, Sanitary and Phyto-sanitary Division (PPSPSD) responsible for registration, certification, inspection, and supervision of GAP farms.



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Indonesia



- The GAP program in Indonesia developed in 2004
- Covers the production of fruit and vegetable crops to assure quality and safety for producers, consumers and the environment and the sustainability of the production system.
- The program has 16 elements, based on GLOBALG.A.P
- The practices in each element classified as “must” or “highly recommended” or “recommended”
- Three levels of certification-
 - Prima One for produce that is safe for consumption, good in quality and produced with environmentally friendly processes of technologies,
 - Prima Two for produce that is safe for consumption and good in quality, and
 - Prima Three for produce that is safe for consumption.

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Lao PDR



- Lao GAP Fruits and Vegetables launched in May 2014 by Ministry of Agriculture and Forestry
- Responsibility to promote and institutionalize GAP with the Standards Division of the Department of Agriculture.
- ASEAN GAP, including its four modules adopted as the national Lao GAP

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Malaysia

- SALM-Skim Amalan Ladang Baik in Malaysia or GAP Scheme developed in 2003 for certification of farmers for safe, quality produce; prevent harm to the environment and ensure their worker health, safety and welfare.
- MyGAP Malaysian Good Agricultural Practices Scheme launched on 28 August 2013 substituting SALM. It is a comprehensive certification scheme for agricultural, aquaculture and livestock sector
- Requirements classified as “major must” or “minor must” or “encouraged”
- To achieve certification,
 - ✓ all of the 29 “major musts”
 - ✓ 95% of the “minor musts”, and
 - ✓ 50% of the “encouraged”



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Myanmar



- Scope of Myanmar GAP
 - covers the production, harvesting, post harvest handling of fruit and vegetables on farm and market
 - products that present high risk to food safety
- Myanmar GAP recently adopted with four modules based on ASEAN GAP
 - food safety,
 - produced quality,
 - environmental safety and
 - workers health, safety and welfare

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Philippines

- The program for GAP for FV Farming was launched in 2006.
- The objectives was to increase market access in both local and foreign markets, empower farmers to respond to consumer demand for food safety and quality, and facilitate adoption of sustainable practices.
- The program has six components
 - farm location,
 - farm structure,
 - farm environment,
 - farm maintenance,
 - farm practices and
 - farm management.



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Singapore



- The voluntary GAP-VF certification scheme was launched in 2004.
- For intensive vegetable farming sector
- The scheme focuses on food safety and has six components - farm location, farm structure, farm environment, farm maintenance, farm practices/ methods/techniques, and farm management.
- The GAP-VF logo is promoted to consumers to provide confidence that produce grown by certified farms is traceable and safe to eat

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Thailand



- Q GAP Program launched in 2003 by DOA
- Purpose – ensure food crops produced are safe, wholesome and meet the required standards
- Q GAP has initially three levels-production processes for
 - safe products,
 - safe and pest-free products, and
 - safe, pest-free and quality products.
- Thai DOA has developed 28 crop manuals detailing practices required to improve yield, quality and food safety.
- Topics included varieties, cultivation, fertilizing, irrigation, crop sanitation, crop protection, safe pesticide use, harvesting, transportation and record keeping.

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Thailand

- Agricultural Standards Act, 2008 – legal framework in which standards for farm produces to be established, certified and controlled.
- Initially implementation voluntarily
- Mandatory standards will be implemented on food safety and where public concerns
- Accreditation and certification for agricultural standards regulated by Agricultural Standards Act 2008
- Q GAP program implementing before the enactment of this law shall be transited and enforced by this law.

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Vietnam

- The Department of Science and Technology (DST) and the Vietnamese Academy of Agricultural Sciences (VAAS) nominated to develop a national GAP system for Vietnam
- VietGAP released on 28th January 2008 - the Ministry of Agriculture and Rural Development to drive its development
- VietGAP based on ASEANGAP and designed to meet specific needs of Vietnamese fresh fruit and vegetables industry
- VietGAP consists of 12 sections

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Vietnam



VietGAP consists of 12 sections

- | | |
|-----------------------------------|---|
| • Site assessment and selection | • Waste management and treatment |
| • Planting material | • Workers and training |
| • Soil and substrates | • Documents |
| • Fertilizers and soil additives | • records |
| • Water, Chemicals | • traceability and recall |
| • Harvesting and handling produce | • Internal audit and Complaint handling |

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GAP in SAARC Countries

- **Regional TCP:** Development of Standards and scheme for Good Agriculture Practices Implementation and Certification in Countries of SAARC - TCP/RAS/3501
- **Objective:** to support the countries of the Region in establishing a system for GAP & its implementation
- **Countries:** All SAARC; **Pilots** - Bhutan, Bangladesh, Maldives, Nepal, Sri Lanka
- **Dates** : March 2014 – February 2016 (extended June 2016)
- **Funding** : US\$ 494,000 (regional and in-country activities)

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Objectives of Project

- Ensure **safe fruits & vegs** in domestic markets
 - To **facilitate regional trade** through implementation of common GAP standards in the region
 - To ensure **acceptability** of fruits and vegetables in **global markets**
- ➡ Through development of a credible GAP system
- Standard or requirements
 - System for certification following international accreditation criteria

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Structure of SAARC GAP Standard

- ❑ Five modules (4+1)
 - Food safety module
 - Environmental management module
 - Worker health, safety & welfare module
 - Produce Quality module
 - General Requirements – Group Certification
- ❑ First four are **standalone modules**; fifth has common general requirements -applicable to each so as not to repeat
- ❑ 4 modules can be **used alone or in combination** with others
- ❑ Enables **progressive implementation** of modules based on country/ producer priorities
- ❑ Each module **grouped into elements** – each element has 1 or more good practices

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Structure of GAP Scheme

- ❑ **Part I Standard for Good Agriculture Practice**
 - Requirements in relation to food safety, quality, environmental management and workers' health, safety and welfare
- ❑ **Part II Establishing a national implementation system for GAP in a country**
 - Section 1 – Options and structure for implementing GAP in a country
 - Section 2 – Guidance for establishing a scheme owner
 - Section 3 – Rules for use of the certification mark
- ❑ **Part III Certification and accreditation for GAP**
 - Section 1 – Certification criteria (detailing requirements for on-farm production of fruits and vegetables based on standard and certification body requirements)
 - Section 2 – Certification process
 - Section 3 – Requirements for certification bodies
 - Section 4 – Requirements for accreditation bodies for GAP.
- ❑ **Annex - List of documents needed under the Scheme**

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QUESTIONS AND DOUBTS



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MODULE II THE GAP STANDARDS/ REQUIREMENTS

- Session 3** An overview of GAP standard - Structure, requirements and conformity criteria
- Session 4** Food safety module
- Session 5** Environmental management module
- Session 6** Workers' health, safety and welfare module
- Session 7** Produce quality module
- Session 8** General requirements module (including group controls)
- Session 9** GAP compliance/ verification criteria, control points & checklists

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Session 3

An overview of GAP standard - Structure, requirements and conformity criteria

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Session Objective

To understand:

- the scope of the GAP standard;
- overall structure of the GAP standard; and
- the GAP standard.

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Contents

- The GAP standard and its purpose
- Scope of the standard
- Structure of the standard
- Brief about the Modules
 - Food safety
 - Environmental management
 - Worker' health, safety and welfare
 - Produce quality
 - General requirements including group controls
- Integration of modules
- Conformity criteria

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GAP Standard: Fruits & Vegetables

- Voluntary or mandatory standard;
- The objective of GAP is to:
 - facilitate production of fruits and vegetables ensuring food safety, quality, environmental sustainability and protection of health, safety and welfare of workers.
- A country's specific requirements and regulations with regards to environment, labour (workers), air, water, wild life protection, farming practices including chemical inputs (fertilizers, manures, plant protection chemicals) and infrastructure to be taken into consideration while developing the standard.

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GAP Standard: Fruits & Vegetables

Scope:

- Fresh fruits and vegetables - production, harvesting and post-harvest handling of farm produce and packhouse operations for produce (in case packed for sale) either for direct consumption or for further processing by food industry.
- Production in open/controlled environment including those grown by hydroponic systems
- Excludes
 - High risk – sprouts, cut fruits and/or vegetables
 - Organic certification
 - GMO-free product certification

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Documents referred to

Sources of information and references :

- ASEAN Secretariat 2006. Good Agriculture Practices (GAP) for production of fresh fruits and vegetables in the ASEAN region.
- FAO training manual, implementing ASEANGAP in the fruit and vegetable sector: its accreditation and certification (FAORAP Publication 2014/02)
- Recommended international code of practice: Codex general principles of food hygiene (CAC/RCP 1 – 1969); and
- Code of hygienic practice for fresh fruits and vegetables (CAC/RCP 53 – 2003)
- GLOBALG.A.P. - Control points and compliance criteria, fruit and vegetables

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GAP Standard: Fruits & Vegetables

Structure:

- The requirements are in the form of 5 modules, namely:
 - Module 1: Food safety module (FSM)
 - Module 2: Environmental management module (EMM)
 - Module 3: Worker' health, safety and welfare module (WHSM)
 - Module 4: Produce quality module (PQM)
 - Module 5: General Requirements Module (GRM)
- First four modules are standalone and may be implemented depending upon objective – alone or in combination with others; enables progressive implementation
- Fifth module specifies common general requirements applicable to four modules and producer group requirements
- Each module is grouped into various elements - each element covers one or more good agricultural practices

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1. Food Safety Module

Grouped into 11 elements and 92 good agricultural practices to control the food safety hazards :

- Site history & management
- Planting material (Propagation material)
- Genetically Modified Organisms
- Fertilizers and soil additives (Plant nutrient management and fertilizer use)
- Water (Irrigation/Fertigation)
- Chemicals (Plant protection products, other agro and non agrochemicals)
- Harvesting & handling produce
- Traceability & recall
- Training
- Documents & records
- Review of practices



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2. Environmental Management Module

Grouped into 13 elements covering 42 good practices to control environmental hazards. While addressing these, consideration to be given to National Environmental Policy.

- Site history & management
- Planting material
- Soil & substrates (substrate management)
- Fertilizer & soil additives
- Water
- Chemicals – (Plant protection products and other inputs)
- Waste management
- energy efficiency
- Biodiversity
- Air/ noise
- Training
- Documents & records
- Review of Practices

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3. Worker' Health, Safety & Welfare Module

Grouped into 7 elements and 35 good practices for controlling hazards to workers' health, safety and welfare :

- Chemicals
- Working conditions
- Personal hygiene
- Worker welfare
- Training
- Documents & records
- Review of practices

Any person who works in the farm including adult family members, permanent worker, temporary/casual/sub-contracted labourer is a worker

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4. Produce Quality Module

Grouped into 10 elements covering 27 good practices to minimize harmful effects of production and production practices to address produce quality

- Quality plan
- Planting material
- Fertilizer & soil additives
- Water
- Chemicals (agrochemicals)
- Harvesting & handling produce
- Traceability & recall
- Training
- Documents & records
- Review of practices

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5. General Requirements Module

This module contains certain common criteria applicable to the four modules. It also contains criteria for farms that seek to apply for certification, whether an individual farm or a group of more than one farm.

Section-A (At Farm Level)

- Legal
- Visitor requirements
- Redressal of complaints
- Site details
- Record keeping and internal inspection
- Calibration

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5. General Requirements Module

Section – B (Group Requirements)

- Legal Requirements
- Written Contracts
- Producer Register
- Structure of Organization
- Competency and Training to Staff
- Quality Manual
- Document Control
- Complaint Handling
- Internal Audit
- Non Compliances, Corrective Actions & Sanctions
- Product Traceability & Segregation
- Withdrawal of Certified Product
- Common Pack House
- Agreement with Buyer
- Subcontracting

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Integration of Modules

Standard requirements (Elements)	Food Safety	Environmental management	Workers' health, safety, welfare	Produce Quality
Site history & management	X	X		
Planting/ propagation material/root stock	X	X		X
Genetically modified organisms (GMO)	X			
Fertilizers & soil additives	X	X		X
Water (Irrigation/Fertigation)	X	X		X
Chemicals (Plant protection products/others)	X	X	X	X
Harvesting and handling produce	X			X
Traceability and recall	X			X
Training	X	X	X	X
Documents and records	X	X	X	X
Review of practices	X	X	X	X
Soil & substrate management		X		
Waste management		X		
Energy efficiency		X		
Biodiversity		X		
Air/noise		X		
Working conditions			X	
Workers welfare			X	
Personal hygiene (Worker health)			X	
Quality plan				X

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SAARC GAP Standard: Fruits & Vegetables

Compliance/ verification criteria

- Each module collates best practices in relevant areas in the form of clauses and sub-clauses;
- Each clause addresses one or more than one good agricultural practices; and
- Important to categorise each requirement/ criteria into the levels of control – whether certified by an independent body (CB), verified by government, checked by producer or producer group with internal management

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Conformity Criteria

- Criteria/requirements stipulated in the standard are also known as **control points**
- The producer needs to comply with the control points.
- The criteria/requirements have been categorized, based on their importance into:
 - **Critical** - those required to maintain integrity of the produce and failing to adhere to the same may result in a serious breach to food safety and product integrity.
 - **Major** – those that are mandatory and must be followed
 - **Minor** – those that are important but not essential depending upon the produce category.
- Compliance levels (recommended) :
 - ✓ **Critical** – 100% compliance with all applicable requirements
 - ✓ **Major** – 90% compliance with all applicable requirements
 - ✓ **Minor** – 50% compliance with all applicable requirements

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QUESTIONS AND DOUBTS



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Session 4

Food Safety Module

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Session Objectives

To understand:

- the requirements of the food safety module of the GAP Standard for fruits and vegetables and details of each element;
- the hazards and risk assessment related to various elements of the food safety module and how to assess these; and
- various GAP that help minimize hazards in production of fruits and vegetables.

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Contents

- Food safety hazards – biological, chemical and physical
- Elements of the food safety module (11)
- Good agricultural practices with regard to each element

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Food Safety Module

- All practices during production, harvesting and postharvest handling of produce to minimize **various food safety hazards** and control unacceptable health risk to consumers.
- Contamination of fresh fruits & vegetables can occur directly or indirectly with contact of produce with hazards from soil, water, people, chemical, equipment, fertilizer, soil additives, handling, transportation etc.

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Food Safety Hazards

- A **food safety hazard** is any chemical, biological, or physical agent or condition/property in the fruits and vegetables that can become an unacceptable health risk to consumers when consuming the fruits and vegetables as intended.
- It is important to control food safety hazards:
 - while preparing the of site for cultivation
 - selection of planting material
 - during production, harvesting and post-harvest handling of fresh produce (trimming, grading, packing, transport etc.).

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Chemical Hazards

Types of chemical hazards include:

- agrochemical residues (pesticides, herbicides, fungicides, etc.) exceeding MRLs;
- non-agrochemical contamination –fuels, lubricants (oil and grease), detergents, sanitizers;
- heavy metals in excess of MLs;
- naturally occurring plant toxins; and
- allergenic agents - allergens.

Chemicals in fresh fruits and vegetables may be introduced during production, harvesting and post-harvest handling, storage and transport of fresh produce or may occur naturally.

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Biological Hazards

- Pathogenic micro-organisms cause illness in consumer either by growing inside the body or by toxins produced by them;
- Mostly found on outside of fresh fruits and vegetables, but some can enter the plant tissue. Examples are:
 - Bacteria such as *Escherichia coli*, *Salmonella*, *Shigella*, *Listeria monocytogenes*;
 - Fungi like *Penicillium*, *Fusarium*, *Rhizopus*;
 - Viruses, *Hepatitis A*, *Rota virus*, *Norwalk* or *Norwalk-like virus*;
 - Parasites such as *Entamoeba*, cysts of *Giardia*, *Cryptosporidium*, *Cyclospora*;
- Sources of biological contamination:
 - poor personal hygiene practices,
 - contact with contaminated soil or untreated animal and human wastes, faeces, contaminated water used for handling produce.

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Physical Hazards



• Physical hazards are foreign objects that can cause injury or illness to consumers. They can enter food chain from:

- the environment – soil, stones, sticks, weed seeds;
- equipment, containers, buildings and structures – glass, wood, metal pieces, plastic, paint flakes, cement pieces, other sharp objects;
- human handling of produce – jewellery, hair clips, pens and other personal items; and
- packaging material – plastics, cardboard, paper, foil used for packaging

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Elements – Food Safety Module

The GAP for controlling food safety hazards grouped into 11 elements & includes 92 practices

- Site history & management
- Planting material
- Genetically modified Organisms
- Fertilizer & soil additives
- Water
- Chemicals – agro & non agro
- Harvesting & handling produce
- Traceability & recall
- Training
- Documents & records
- Review of practices



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Site history and management

- Site assessed to identify risk of contaminating produce with chemical and biological hazards from previous use of site or adjoining sites
- Risk evaluated
- If significant risks identified, site not used for fresh produce without corrective action to manage the risk
- Remedial actions, if taken are monitored and records kept

105

Planting material

- Produced on farm or purchased
- Records kept
 - If from own – fertilizers/ chemicals used with reason for usage.
 - If purchased/ obtained from another farm or nursery - name of farm and date of supply
- Planting material to be free of visible signs of pest and disease.
- Treatment of seeds only with approved additives/ biocides/fungicides/pesticides and as per recommended technologies
- No cultivation of varieties toxic to humans.

106

Genetically Modified Organisms (GMO)

- Planting or trials with GMO's if permitted by country legislation
- If GMO grown on farm, to be documented
- Producer to inform clients if GMO is present in the product.
- Written plan for handling GM material (crops and trials), setting out strategies to minimize contamination hazards shall be available .
- Record of the actions maintained.
- GM crops stored separately from non-GM crops before dispatch

107

Fertilizers and soil additives

- Risk assessment (chemical/ biological) done and records of significant hazards recorded
- Measures taken to minimize the risk of contaminating produce;
- Fertilizers/ soil additives selected to minimize risk of heavy metal;
- Untreated organic materials not used if risk significant; if treatment on farm method/date/duration recorded; if obtained from outside documents from supplier
- Fertilizers/ soil additives applied at appropriate stages of crop growth - based on soil analysis, recommendations of CA/own experience
- Untreated human sewage not used for of fresh produce
- Facilities for storage, mixing, loading (fertilizer/soil additives), for composting of organic material, located, constructed, maintained to minimize contamination (production sites and water sources).
- Records of procurement of fertilizers/ soil additives(source, product name, date and quantity); and application (date, product name, rate and application method, name of operator)
- Fertilizers stored separate from farmed produce

108

Water

- Free from harmful contaminants
- Annual assessment of water source for chemical/ biological contamination and records kept;
- If water testing to assess risk of contamination, frequency appropriate to the conditions impacting on the water supply and records kept;
- If **risk identified**, safe alternative water source used/ water treated before use;
- **Untreated sewage water** not used during production/ post-harvest handling. Treated water to meet national regulations;
- Adequate measures to prevent water flow from undesirable sources (hospitals, dump areas) to fields

109

Chemicals (Plant protection products, other agro and non-agrochemicals)...1/2

- Only permitted pesticides to be used
- Chemicals purchased only from registered/licensed suppliers
- Mixing of chemicals avoided, unless recommended by CA
- Correct dosage applied and surplus usage avoided - surplus disposed so as to avoid contaminating produce
- Withholding periods as per label
- Equipment for application well maintained, kept in working condition, checked for effective operation by competent person; washed after every use and wash water disposed to avoid contaminating produce
- IPM used to minimize use of inorganic chemicals
- If residues in excess of MRL found in product, marketing to cease, cause investigated - CA taken & record kept of incident/actions

110

Chemicals (Plant protection products, other agro and non-agrochemicals)...2/2

- Stored in well-lit/sound/secure structure, located, constructed to minimize risk of contaminating produce;
- Liquid chemicals not stored on shelves above powders;
- Stored in original container & legibly labeled. If transferred to another container to be clearly labeled.
- Empty containers not reused, kept secure, disposed as per country regulations.
- Obsolete or expired chemicals clearly identified, kept secure till disposal. Disposal thro' official collection channels/legal off-site areas.
- Records kept - chemicals procured, applications, held in storage - detailing the chemicals used, name of supplier, date and quantity obtained, date of manufacture and expiry, operator, disposal.
- Other non agricultural chemicals like fuels, oils – handled, stored and disposed to minimize risk to food safety

111

Harvesting and handling produce

• Equipment, containers and materials

- Equipment/ containers/ materials coming in contact with produce made of easy to clean **material** that will not contaminate produce
- Containers (for storing chemicals, waste, other dangerous substances) clearly **identified** and not used for produce
- Equipment/ containers **maintained** to minimize contamination of produce; kept separate from chemicals, fertilizers and soil additives to avoid **cross contamination**
- Equipment/ containers/ material **checked for soundness & cleanliness** before use & cleaned, repaired & discarded as/need
- Measuring devices calibrated as/ country legal requirements
- Harvested produce not placed directly on soil/ floor of the handling, packing or storage areas

112

Harvesting and handling produce

• Building and structure

- Buildings & structures for growing/ packing/ handling/ storage to be constructed & maintained to minimize risk to produce
- Grease, oil, fuel, farm machinery segregated from handling, packing & storage areas
- Sewage, waste disposal & drainage systems constructed to minimize risk of contaminating production site & water supply
- Lights in the packhouse or store shatter proof or protected
- Equipment/ tools that may be sources of physical hazards shall be screened by a physical barrier or not used during the handling and packing of produce.

113

Harvesting and handling produce

• Cleaning and Sanitation

- packaging, handling & storage area & equipment, tools, containers & materials that may be sources of contamination to be identified and regularly cleaned and sanitized.
- Appropriate cleaning/ sanitation chemicals selected to minimize the risk of these contaminating produce.

114

Harvesting and handling produce

• Animal & pest control

- Domestic & farm animals to be kept out of the production site and around handling, packing and storage areas.
- Measures taken to prevent presence of pests in and around handling, packing and storage areas.
- Baits and traps used for pest control located and maintained to minimize risk of contaminating produce. The location recorded.

115

Harvesting and handling produce

• Personal hygiene

- Workers trained in personal hygiene practices and training records kept.
- Written instructions on personal hygiene provided to workers & displayed in prominent locations.
- Toilets & hand washing facilities available & maintained hygienically.
- Sewage disposed so as to minimize contaminating produce.

116

Harvesting and handling produce

• Produce treatment

- Water applied to edible parts of produce shall meet same norms as drinking water
- Chemicals applied for post-harvest and waxes shall follow the same practices as under the chemical section and shall comply with instructions and recommendations from CA.
- Specific test on produce shall be included if required by importing country.

117

Harvesting and handling produce

• Storage & transport

- Produce stored & transported separately from goods which can contaminate produce
- Produce stored in cool places, overloading avoided, covered to reduce moisture loss during transportation.
- Containers filled with produce not placed in direct contact with soil. Pallets checked for cleanliness, chemical spills, foreign objects, pest infestation - rejected if risk to produce
- Vehicles for transporting produce kept clean/ in good condition and checked for cleanliness, chemical spills, foreign objects and pest infestation before loading.

118

Traceability and recall

- Production site identified by a name or code and recorded on a property map
- Packed produce clearly marked with name & identification to enable traceability to farm or site of production
- Record maintained giving date of delivery/destination of each consignment
- Produce identified as contaminated/ potentially contaminated to be isolated, cause of contamination investigated and CA taken and record kept of incident/ action taken. If contamination detected after produce sold, buyers to be notified immediately.
- Investigation for the cause of contamination followed by corrective action for prevention of recurrence. Record of the incident and the action taken.

119

Training

- Training of employers and workers to be based on their responsibilities and impact of GAP. Records to be kept. The areas are:
 - purchase, handling, storage & use of chemicals, including selection of chemicals or bio-pesticides, which are approved & recommended by the CA for crops grown
 - application of IPM & avoidance of use of inorganic chemicals
 - information and updates on MRLs of countries – national and country of trade
 - Correct use of chemicals and before shelf life/expiry date
 - the need to test produce for chemical residues at a frequency required by customers or market.
- Annual review of training needs.

120

Documentation & records

- Records of all practices shall be kept for a minimum period of two years or longer, if required by country legislation or customer
- Obsolete (Out-of-date) documents to be discarded
- Only current versions use

121

Review of Practices

- All practices reviewed at least once a year for correctness and actions taken, any deficiency identified corrected and complaints related to food safety resolved
- Records kept of the practices reviewed, corrective action taken; complaints received and actions taken

122

Optional Requirements

1. Fertilizers and soil additives (Plant nutrient management and fertiliser use)

- Availability of documents demonstrating application of fertilizers/nutrients (organic or inorganic) done by competent/trained person
- Availability of records demonstrating that types and dosages of fertilizers/nutrients are in line with soil test – crop response studies and/or recommendations of Universities/ research centres/ approved organizations for the crop.
- Availability of records indicating competence and knowledge of producer(s) in determining types and dosages of fertilizers in case advisers not available
- Use of fertilizers/nutrient with recommendations on the type and by a competent, qualified advisor.

123

Optional Requirements

2. Chemicals (Plant protection products or other agro and non- agrochemicals)

- Chemicals to be applied correctly - testing produce (in an accredited laboratory) for chemical residues at a predetermined frequency in line with requirement of CA of the country where produce is traded.
- Records maintained for technical authorization of all chemicals applied and their quantities.
- Availability of documented procedure for correct handling and filling as per label while mixing plant protection chemicals.
- Application of formulations should be such that usage of chemical are economically justified and have minimal adverse impact to environment.

124

QUESTIONS AND DOUBTS



125



Session 5

Environmental Management Module

126

Session Objectives

To understand:

- the requirements of the environmental management module of the GAP standard for fruits and vegetables;
- the hazards and risk assessment related to various elements of the environmental management module and how to assess these; and
- various Good Agricultural Practices (GAP) that help control these hazards.

127

Contents

- Environmental hazards – category and types
- Elements of the environment management module (13)
- Good Agricultural Practices with regard to each element

128

Environment Hazards

- Environment hazards are negative impacts that occur to the environment on and off site as a result of production, harvesting and post-harvesting handling of fruits & vegetables.
- Good agricultural practices can prevent or minimize the negative impact of farm activities on environment.

129

Category of Environmental Hazards

- Land & soil – soil erosion, poor soil structure, salinity, soil acidity & alkalinity, sodicity
- Water – depletion of water, poor water quality
- Chemicals – contamination of environment, spray drift
- Nutrients – degradation of soil and water
- Biodiversity – loss of biodiversity
- Waste – degradation of soil, water & air, depletion of natural resources
- Air – dust, smoke, green house gases, noise
- Energy – depletion of natural resources

130

Controlling Environmental Hazards - Steps

- **Identify the hazard** - What can happen to the environment on and off the property if something goes wrong?
- **Assess the risk** – What is the likelihood and consequence of the hazard occurring on environment?
- **Control the hazard** – What good agricultural practices are required to prevent or minimise the risk of significant hazards?
- **Monitor and review hazards** – Are the good agricultural practices working and have there been any changes that introduce new hazards?

131

Environmental Management Module

- The module is grouped into 13 elements covering 42 GAP to minimize harmful effects of production and practices on environment.
- While addressing these, consideration should be given to national environmental policy.
 - Site history & management
 - Planting material
 - Soil & substrates
 - Fertilizer & soil additives
 - Water
 - Chemicals – plant protection product & other inputs
 - Waste management
 - Energy efficiency
 - Biodiversity
 - Air/Noise
 - Training
 - Documents & records
 - Review of practices

132

Site history and management

- Risk evaluation, remedial actions & detailed property map
 - Sites to comply with country regulations that restrict production at high altitudes or steep slopes;
 - Assessment of risk to environment for new sites, - prior to use of site, impact of crop production/ post-harvest handling, and impact of adjacent sites on new site;
 - For new sites, if significant risk identified, site either not used or measures taken to prevent or minimize potential hazards;
 - Highly degraded areas managed to restrict further degradation;
 - Site activity to conform to country's environmental conditions such as air, water, noise, soil, biodiversity and other applicable; and
 - Farm layout map maintained showing crop production sites, environmentally sensitive or degraded areas, other important landmarks.

133

Planting material

- Selection of disease resistant or pest-resistant planting material to minimize use of chemical and
- Selection of planting material compatible with soil type, soil fertility level so that the use of additional nutrient supplying chemicals is avoided.

134

Soil & substrates

- Suitable production practices, crop rotation, justified use of soil fumigants etc.
 - Selection of production practices suitable for the soil type and not increase the risk of environmental degradation;
 - Use of soil maps where possible to plan for crop rotation, or a fallow period to increase soil fertility;
 - Use of practices to improve and maintain soil structure and soil compaction to minimize erosion;
 - Chemical fumigants to sterilize soils and substrates may be used; record kept.

135

Fertilizer & soil additives

- Based on recommendation of national soil service center/ or competent source and considering the crop and soil type to avoid the nutrient run-off or leaching;
- Areas/facilities for storage, mixing or loading of fertilizer and soil additives and for composting located, constructed & maintained to minimize risk to environment;
- The equipment used for application to be maintained in good condition; checked annually;
- Application records maintained

136

Water

- Irrigation based on crop water requirements, availability of water and soil moisture levels;
- The irrigation system checked and maintained to ensure efficiency and minimize wastage of water;
- Water collection, storage and use comply with country legislation;
- Irrigation record kept - detailing crop, date, location and volume of water irrigated and duration;
- Waste, drainage, discharge water treated to minimize risk;
- A water management plan to optimize water usage and reduce waste maintained

137

Chemicals (Plant protection products & other inputs)

- Farmers/workers trained for chemical application;
- Chemicals selected to minimize negative effect on environment;
- Crop protection measures based on recommendations of CA/ PPO;
- Use of chemicals minimized by use of IPM/ non-chemical products;
- Chemicals obtained from licensed suppliers; approved by a CA for crop; applied as per label directions/ guidance from CA;
- Crop rotation strategy to avoid pest/disease resistance;
- Appropriate volumes of chemicals mixed to minimize surplus;
- Surplus chemical mixes/tank washings disposed to minimize risk;
- Empty containers collected/disposed as per country regulation;
- Obsolete chemicals identified, kept secure & disposed responsibly;
- Chemicals' application recorded for each crop with relevant details;
- For chemicals held in storage, records to be kept; and
- Use/ storage of post-harvest chemicals as per country regulations.

138

Waste management

- Waste management plan (including identification of waste products generated, using practices to minimize waste generation, to reuse, recycle waste and dispose of waste) documented.

Energy efficiency

- Consumption of electricity and fuel reviewed to ensure efficient operation practices implemented; and
- Machine & equipment maintained for operational efficiency and to save energy.

139

Biodiversity

- Production plan complying with country regulations covering protected plant/ animal species to ensure preservation of protected species;
- Conserve native plant/ animal species, including native vegetation areas, wildlife corridors and vegetation areas on or near bank of waterways;
- Measures applied to control and protect feral animals.

Air/Noise

- Management of offensive odour, smoke, dust & noise during production practices to minimize impact on neighbouring property and surrounding areas

140

Training

- Farmers/ workers trained to have appropriate knowledge in their areas of responsibility related to GAP; training records kept

Documents and records

- Records of good agricultural practices shall be kept for two years or more in accordance with statutory requirements/ or business requirements.
- Obsolete (out-of-date) documents discarded and only current versions should be in use.

141

Review of Practices

- All practices reviewed at least once a year for correctness and actions taken, any deficiency identified corrected and to complaints related to environmentood safety resolved
- Records kept of the practices reviewed, corrective action taken; complaints received and actions taken

142

Optional Requirements1/2

• Site history and management

- Each producer to conduct a baseline audit on the status of biodiversity; maintain a management and conservation plan for protecting biodiversity and wildlife impacted due to farming activities; plan to address actions to prevent damage and deterioration of habitats and measures to enhance biodiversity on the farm.
- The producer to have policy for protection and improvement of the environment for benefiting local community and flora and fauna.

143

Optional Requirements...2/2

• Soil and substrates (Substrate management)

- The producer to participate in substrate recycling programmes, where applicable;
- Written justification available when soil fumigants used; and
- An interval between soil fumigation and planting decided and complied with; records maintained.

144

Environment Management Module

QUESTIONS AND DOUBTS



145



Session 6

Workers' Health, Safety and Welfare Module

146

Session Objectives

To understand

- the requirements of the workers' health, safety and welfare module of the GAP standard for fruits and vegetables and details of each element;
- the hazards and risk assessment related to various elements of the workers' health, safety and welfare module and how to assess these; and
- various Good Agricultural Practices (GAP) that help minimize hazards.

147

Contents

- Workers' health, safety and welfare hazards - various types and causes;
- Elements of the workers health, safety and welfare module (7); and
- Good Agricultural Practices with regard to each element

148

Worker Health, Safety & Welfare Hazards

- Any person working on the farm including, adult family members, permanent, temporary/ casual/sub-contracted labour is a worker.
- Many deaths or injuries occur yearly due to farm accidents;
- Such injury, illness are heavy cost to the health and well being of workers;
- Accidents are preventable and as a first step it is important for worker to be aware of hazards to health, safety and welfare; and
- Every worker has responsibility to reduce risk of injury and/or illness associated with farm works such as tilling, planting, application of chemicals and fertilizers, harvesting, post-harvesting and other operations.

149

Types of Hazards & Causes

- Mechanical – moving parts of machine, equipment, vehicles, working at heights, heavy manual lifting
- Chemical – inappropriate storage/ handling/ application
- Biological – contamination from water, equipment, containers, material, produce, facility & pests/ animals
- Electrical – Overhead power lines, faulty equipment, improper joints, sockets
- Solar radiations – excessive exposure to heat and sun
- Noise – loud machinery, equipment and vehicle
- Stress and fatigue – long and continuous working hours
- Welfare – exploitation of age, gender, race

150

Steps to manage risks of hazards to workers health, safety & welfare

- Identify the hazards – What can happen to workers' health, safety and welfare if something goes wrong?
- Assess the risk – What is the likelihood and consequence of the hazard occurring?
- Control the hazard – What GAPs are required to prevent or minimise the risk of injury/ illness?
- Monitor and review hazards – Are the GAPs working and have there been any changes that introduce new hazards?

151

Worker Health, Safety & Welfare Module

This module takes into account the role of farm workers and gives importance to their health as this has a direct effect on the loss of production and earnings of a farm. There are 7 elements covering is composed of 35 good practices

- Chemicals
- Working conditions
- Personal hygiene
- Worker welfare
- Training
- Documents & records
- Review of practices

152

Chemicals

- Handled only by trained workers with appropriate knowledge/ skills
- Stored in well lit, sound, secure structures - access to authorized persons only;
- Have emergency facilities to deal with chemicals spill;
- Stored in original containers with legible labels; if transferred, new container clearly labeled;
- Re-use of empty chemical containers prohibited; and
- If significant risk of chemical contamination to workers, MSDS (Material Safety Data Sheets) or safety instructions available & displayed.

153

Chemicals

- Safety and emergency instructions prominently displayed;
- First - aid measures readily available in case of contamination;
- Workers handling chemicals, to have suitable protective clothing and equipment;
- Clothing cleaned & stored separate from crop protection chemicals; and
- Access to chemical application sites restricted/ use of warning signs
- Material safety data sheet of all chemicals available

154

Working conditions

- Suitable working conditions. If not available, use of protective equipment/ clothing for working under hazardous conditions;
- Indication of hazardous areas with warning signs like "Danger" and precautions needed prominently displayed;
- Farm vehicles, equipment, tools, electrical and mechanical devices, electrical installations & dangerous places to be guarded and maintained in good condition;
- Safety operation manual on handling practices – lifting heavy objects, excessive twisting, equipment/ tools/ vehicles provided to workers and displayed.

155

Personal hygiene

- Farmers and workers trained and records maintained;
- Written instructions on personal hygiene practices distributed and displayed at prominent locations;
- Six monthly medical check-up of workers and records maintained for 5 years;
- Toilets, hand and body washing facilities readily available and maintained in a hygienic condition;
- Disposal of sewage to minimize risk of contamination;
- Any serious health issue to be reported to appropriate authorities when health cover to workers is provided; and
- Prevent access of domestic and farm animals to production sites and around the handling, packing and storage areas.

156

Worker welfare

- Workers treated equally in all respects;
- Workers not exploited due to gender, age or other reasons;
- Suitable living quarters with basic services and facilities – clean food storage areas, designated eating areas, hand washing facilities and drinking water; and
- Minimum working conditions, working hours, age and minimum wages to comply with country's regulations.

157

Training

- Safety training of workers when working in the site
- Training workers in areas of their responsibility such as vehicles, tools and equipment operation, handling and application of chemicals; and
- Annual review of training needs.

Documents & records

- Records kept for minimum 2 years (longer if required by legislation/ customer)
- Obsolete documents removed,

158

Review of Practices

- All practices reviewed at least once a year for correctness and actions taken, any deficiency related to worker health, safety & welfare identified corrected and complaints resolved
- Records kept of the practices reviewed, corrective action taken; complaints received and actions taken

159

Optional Requirements

Worker welfare

- Identifying a member of management with responsibility for workers health, safety and welfare;
- Regular meetings between management and workers as two-way communication with maintenance of records; and
- Annual voluntary health checks for workers with contact with plant protection.

160

Workers' Health, Safety and Welfare Module

QUESTIONS AND DOUBTS



161



Session 7

Produce Quality Module

162

Session Objectives

To understand

- the issues related to produce quality;
- various GAP that help minimize these issues; and
- the requirements of the produce quality module of the standard for Good Agricultural Practices (GAP) for fruits and vegetables.

163

Contents

- Various kinds of produce quality issues and hazards affecting quality and quality losses;
- Elements of produce quality module (10); and
- Good Agricultural Practices with regard to each element

164

Quality issues

What does the customer/consumer want:

- free from injury, spoilage, blemish, pests
- neither over ripe nor under ripe
- free from excessive dirt, chemical residues, foreign matter and
- Typical odour and taste

Lack of these are called “Quality Hazards”

165

Produce Quality Module

Quality hazards – any characteristic that prevents produce from meeting requirements of customer and/or regulations.

Produce quality can be lost at any step during:

- production
- harvesting and
- post-harvesting

166

Quality loss during production

Losses due to :

- **External characteristics** – colour, shape, size: affected by practices that impact on plant growth and crop load such as water/nutrition management, pruning/thinning; disease infection, pest damage and mechanical injuries such as wind rub.
- **Internal characteristics** – fragrance, taste, shelf life, nutritional value: reduced by water stress, inadequate plant nutrition and excessive crop loads.

167

Quality loss at harvest

Losses due to :

- Maturity of produce - when to harvest, shelf life also affected
- Type of produce – stem, leaves, flower, fruits (partially & fully developed) roots & tuber

168

Quality loss during postharvest handling

- Losses due to :
 - Accelerating ageing (senescence)
 - Water loss
 - Mechanical injury during handling, storage & transport
 - Physiological disorder
 - Infection/growth during storage
- What practices will help maintain this??

169

Produce Quality Module - Elements

The GAP for controlling produce quality hazards are grouped into 10 elements and 27 practices.

- Quality plan
- Planting material
- Fertilizer & soil additives
- Water
- Chemicals (agrochemicals)
- Harvesting & handling produce - harvesting; handling produce; storage & transport;
- Traceability & recall
- Training
- Documents & records
- Review of practices

170

Quality plan

- A quality plan to be maintained – to cover practices that are critical to manage produce quality during production, harvesting and post-harvesting stages.
- Examples of quality characteristics are:
 - External appearance: colour, texture, shape, size etc.
 - Internal quality: total soluble solids, water content, turgidity, nutritional value etc.

171

Elements – Produce Quality Module

- **Quality plan** – practices to manage produce quality during production, harvesting & postharvest handling identified
- **Planting material** – selection to satisfy market requirements, if purchased plant health certificate or guarantee of quality from supplier
- **Fertilizer & soil additives** – as per recommendations from CA/ testing, equipment maintenance & checked annually, facility for composting of organic material fit to prevent contamination risk, application details recorded
- **Water** – based on crop water requirement, availability, soil moisture levels; records of irrigation kept

172

Planting material

- Planting material (seeds, rootstock, scion) selected to satisfy market requirements - obtained from farms or nurseries certified or recognized by the Plant Health Office or other reliable sources to ensure the quality and freedom from diseases.
- Records of the same shall be maintained.

173

Fertilizer & soil additives

- Applications to be based on crop grown and recommendations of competent authority;
- Applications done properly to ensure their effectiveness;
- Composting facilities constructed and maintained to prevent cross contamination of the crop; and
- Maintenance of records of application with quantity and date of application and name of person.

174

Water

- Irrigation to be based on water requirements of the crop grown, water availability and soil moisture levels; and
- Records to be maintained with date of irrigation, location, duration and volume of water applied.

139

Chemicals

- Only trained persons allowed for chemical application
- Approved chemicals used – from licensed suppliers; applied as per label or permit issued by CA;
- Chemical rotation/ other crop protection measures to avoid pest resistance;
- Application equipment maintained in good condition & checked at least annually; and
- Applications recorded



175

Harvesting and Handling Produce

Harvesting

- Maturity index of produce for correct time of harvest; carried out at coolest time of the day (early in the morning);
- Appropriate technique adopted;
- Suitable & clean equipment, tools & containers, containers not over filled, liners for protection, covered, remove from field quickly, place in shade, avoid mechanical damage (stacking/ transport)
- Harvested produce should not be placed directly on the soil, or floor of the handling, packing or storage areas



141

Harvesting and handling produce

Handling and packaging produce

- Use of clean water for handling, washing and treatment of produce. Regular changing of water to avoid spoilage organisms damaging the produce.
- Avoiding excessive drops and impacts to minimize mechanical damage to produce.
- Packing and storing under roofs and in cool places.
- Appropriate treatment (disease/ loss of quality), prevent pest – handling/packing/storage
- Kept off soil or floor surfaces.
- Grading and packing according to the customer/ market requirements.

177

Harvesting and handling produce

Storage and transport

- Produce held at lowest temperature possible in case of delay in transport ;
- Produce always covered and maintained at requisite temperature to prevent transit contamination and loss in quality/quantity;
- Transport mechanism maintained clean and free from contamination; mixing of non-compatible product avoided; and
- Harvested Produce transported to destination in minimum possible time.



143

Traceability and Recall System

- Identification of each site with name/code (both on-site and property map)
- Packed containers marked with code, code available on all records; and
- Record of the date of supply, quantity of produce and destination of each consignment kept



179

Training

- Training of farmers and workers in the area of their responsibility relevant to GAP; and
- Record of training kept



Documents & records

- Records of good agricultural practices shall be kept for two years or more in accordance with country's legal requirements.
- Obsolete documents to be discarded and only current versions should be in use.



176

Documents & records

- Records of good agricultural practices shall be kept for two years or more in accordance with country's legal requirements.
- Obsolete (out-of-date) documents to be discarded and only current versions should be in use.



182

Review of Practices

- All practices reviewed at least once a year for correctness and actions taken, any deficiency related to produce quality identified, corrected and complaints resolved
- Record of review of all practices and any corrective actions taken.

178

Optional requirements

Chemicals

- Availability of documented procedure be for correct handling and filling as per label recommendations for plant protection products



Harvesting and Handling Produce

- Recording of temperature and humidity of on-farm stored produce.

184

Produce Quality Module

QUESTIONS AND DOUBTS



180



Session 8

General Requirements Module (Including Group Controls)

186

Session Objectives

To understand

- the common criteria applicable to all four modules (namely food safety, environmental management, workers' health, safety and welfare and produce quality); and
- the additional requirements to be maintained by a group of farms for implementing their internal control systems.

187

Contents

- Common criteria applicable to the four modules (namely food safety, environmental management, worker health, safety and welfare and produce quality); and
- Criteria for internal control systems applicable for certification:
 - Section A - Farm level
 - Section B – Group level

188

Section A (Farm Level)

- **Legal**
 - Ownership of land either by applicant; or
 - An agreement between legal owner and applicant granting authorization to carry out agricultural operation by applicant.
- **Visitor requirements**
 - Same practices as applicable to farm workers to ensure the safety of the produce as well personal safety.
- **Redressal of complaints**
 - All complaints to be adequately registered and suitably responded; and
 - Complaints to be effectively addressed, action taken and records maintained.

189

Section A (Farm Level)

- **Site details**
 - Each farm or production unit shall be referenced on farm plan or map.
- **Record keeping and internal inspection**
 - All records pertaining to GAP to be retained for minimum two years unless requires longer period by legislation.
- **Calibration**
 - The producer shall, where applicable, have equipment calibrated as per the country's legal requirements.

190

Section B (Group Requirements)

- This module is applicable only if the growers form a producer group as a single legal entity to adopt the standard as a group;
- There shall be an internal control system in place within producer group;
- There shall be a formal contract amongst the growers for operation of the producer group, accompanied with policies and procedures; and
- The basic requirements to be implemented are given in following slides

191

Section B (Group Requirements)

- **Legal requirements**
 - Documentation to demonstrate that group is a registered/legal entity;
 - Group with a clearly defined structure to implement GAP and to own responsibility for production and management of the produce; and
 - The administrative/management structure of the group establishing clear relationships between members with the group.

192

Written Contract

- A written signed contract between each member of the group (legal entity), covering:
 - individual details,
 - farm details,
 - obligations (to abide by the requirements laid by producer group and the GAP standard, and
 - sanctions in case of non-compliance with GAP/any other internal requirements.

193

Producer Register

- All farmers of the group to be **registered**
- **Register maintained** - name, contact person, address, farm data sheet (crop & production area), quantity of expected produce, date of internal audit, status of certification, sanction details etc
- A **contract** (commitment) signed between each farmer & ICS operator in language understood by farmer
- **An overview map** (village/ community map) showing each farm location
- **Changes in farm data** –either updating or new farm data sheet to be completed

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Training Course on

GOOD AGRICULTURE PRACTICES (GAP) FOR FRUITS AND VEGETABLES

VOLUME 2 OF A SCHEME AND TRAINING MANUAL ON GOOD AGRICULTURE PRACTICES (GAP) FOR FRUITS AND VEGETABLES

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Competency and training to staff

- Assessment of knowledge and competency requirement of key personnel managing the group (trainer, quality manager, internal auditor, group manager etc.);
- Staff operating GAP certification well trained, competent and capable;
- Documentation about qualification of designated staff, their knowledge and competency, requirements of training;
- Maintenance of record on qualifications and training of designated staff; and
- Internal inspectors adequately trained and evaluated.

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Quality Manual

- Manual to contain:
 - Scope of certification; policy of the group management; and internal control systems, working procedures and policy for member registration and designated members;
 - Periodic review and updating;
 - System of updating information and awareness on developments, dissemination and legislative revision (latest version) in relation to GAP compliance shall be in place; and
 - Internal control is documented & all documentation of each certified farmer available for audit.

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Document Control

- Procedure for document control including external origin documents to be maintained;
- All documents under document control system;
- A Master List of all documents for GAP Scheme (Quality Manual, working procedures, instructions, record formats and external origin documents); and
- Records to demonstrate effective document control.

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Complaint Handling

- Procedure for handling of all complaints regarding GAP covering their receiving, registering, problem identification, causative analysis, redressal and follow up;
- A defined timeline for complaint handling;
- Maintenance of records relating to complaints; and
- Provisions to maintain confidentiality, where applicable.

199

Internal Audit

- Audit of each member for compliance to GAP, compliance to the requirements of the internal control system of the group atleast yearly by a qualified auditor and NC suitably addressed;
- Defined competency requirement of the internal auditor; and
- A documented procedure for internal audit covering review of internal inspection reports and action taken on finding of internal audit.

200

Non-Compliances, Corrective Actions and Sanctions

- A procedure for identifying and recording of corrective actions including root cause analysis of non-compliance, responsibilities and time frame for corrective action;
- Sanctions and Infringement:
 - Procedures for imposing sanctions;
 - Prompt notification to Certification Body for suspension or revocation;
 - Provision of sanctions and infringement as part of contract between producer and producer group.
- Recording of non-compliance, corrective action, and sanctions.

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(GAP) FOR FRUITS AND VEGETABLES

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Other requirements

Withdrawal Of Certified Product

- Procedure for product recall and withdrawal with its annual review.

Common Pack house

- Group with one or more common pack house within their farming operation, shall require that every pack house meeting the GAP requirements.

Agreement with Buyer

- Written agreement between a group and each of their buyers to prevent misuse of GAP certification and the Certification Mark.

203

General Requirements Module (Including Group Controls)

QUESTIONS AND DOUBTS



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EXERCISE 1

GAP REVIEW QUESTIONNAIRE



205



Session 9

GAP Compliance Criteria, Control Points and Checklists

206

Session Objectives

To understand

- the concept of criteria/ requirements/ control points, their categorization and levels of compliance to be maintained with respect to these
- The use of checklists and verification of each criteria

207

Contents

- GAP compliance/verification criteria;
- Control points and their categorization;
- Compliance levels;
- Checklists – structure with few examples.

208

GAP Standard: Fruits & Vegetables for SAARC Countries

Compliance/ verification criteria

- Each module collates best practices in relevant areas in the form of clauses and sub-clauses
- Each clause addresses one or more than one good agricultural practices (GAP)
- Important to categorise each requirement/ criteria in terms of the levels of control – whether certified by an independent body (CB), verified by government, checked by producer or producer group with internal management

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Control Points

Criteria/requirements stipulated in the standard which the producer needs to comply with are also known as **Control Points**

210

Categorization of Control Points

- The criteria/requirements have been categorized on the basis of their importance into:
 - **Critical** - those required to maintain the integrity of the produce and failing to adhere to the same may result in a serious breach of food safety and product integrity.
 - **Major** – those mandatory and must be followed
 - **Minor** – those important but not essential depending on the produce category.
- Compliance levels (recommended) :
 - ✓ **Critical** – 100% compliance with all applicable requirements
 - ✓ **Major** – 90% compliance with all applicable requirements
 - ✓ **Minor** – 50% compliance with all applicable requirements

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Checklists : Structure

- Checklist - the requirement, its category, how the same can be verified by either the producer or the auditor. A column is included for comments and a final column on the compliance status.
- Each module lists the criteria/ requirements for control along with level of control.
- Some examples of criteria pertaining to each module are given in the form of checklists.

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Elements – Food Safety Module

The **GAP** for controlling food safety hazards grouped into **10 elements & includes 84 practices**

- Site history & management
- Planting material
- Fertilizer & soil additives
- Water
- Chemicals – agro & non agro
- Harvesting & handling produce
- Traceability
- Training
- Documents & records
- Review of practices

213

FOOD SAFETY MODULE

Requirement / CP	Category	Verification Statement	Self / Auditor Comments	Compliance Status
Site History and Management				
Site history assessed to identify the risk of contamination to crops grown from previous use of chemical and/or biological hazards on site or adjoining sites and the same documented.	Major	Site history assessment record		
Where significant risks identified, the site not used for production of fresh produce without first taking some action to manage the risk	Critical	Records and visual evidence		
If remedial action is required to manage any risk, a monitoring programme shall be in place so that contamination to produce not occur and records shall be maintained.	Critical	Monitoring programme & applicable records		

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FOOD SAFETY MODULE contd..

Requirement	(Category)	Verification Statement	Self / Auditor Comments	Compliance Status
Water (Irrigation/ Fertilization)				
The water used for irrigation/ fertilization free from harmful contaminants.	(Major)	Verify test reports		
Assessment of the source of water used for irrigation, application of chemicals or handling, washing, treating the produce or cleaning and sanitation done at least annually to minimize the risks of chemical/ biological contamination and records kept.	(Minor)	Annual assessment records		
Where water testing needed to assess risk of contamination, tests done at a frequency appropriate to conditions and records maintained.	(Critical)	Test reports		
Where a significant risk is identified, either a safe alternate water source used or water treated before use.	(Major)	Check for safe alternate/ water treatment Records		
Untreated sewage water not used during production or post-harvest handling. Where treated water permitted, water quality to comply with national regulations	(Critical)	Visually/ Water quality test reports		
The producer to maintain irrigation equipment as/ manufacturer guidelines/manual	(Minor)	Maintenance schedule		
The farmer to employ adequate measures to prevent flow of water into fields from undesirable sources like municipal landfill areas, hospital/ industry waste dump	(Major)	Physical structure present - check		

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FOOD SAFETY MODULE contd..

Requirement	Category	Verification Statement	Self / Auditor Comments	Compliance Status
Harvesting and Handling Produce				
Harvested produce not placed directly on soil, or on floor of the handling, packing or storage areas.	(Major)	Physical verification of practices		
Equipment, containers and materials:				
Equipment, containers & materials that come in contact with produce to be made of material that will not contaminate the produce and is easy to clean.	(Major)	Cleaning schedule and records. Visual inspection		
The containers used for storage of chemicals, waste, other dangerous substances to be clearly identified and not be used to hold or store produce.	(Major)	Containers present and labelled.		
Equipment/ containers regularly maintained to minimize contamination of produce and kept in areas separate from chemicals, fertilizers & soil additives to avoid cross contamination.	(Major)	Maintenance schedule or visually		
Equipment, containers and material checked for soundness/cleanliness before use and cleaned, repaired and discarded as required.	(Major)	Visual check		
Measuring devices calibrated atleast once per year or as per the legal requirements of the country.	(Major)	Calibration report		

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2. Environmental Management Module

The module is grouped into 13 clauses and 40 sub-clauses good agricultural practices to minimize harmful effects of production and production practices on the environment.

- Site history and management
- Planting material
- Soil & substrates (Substrate management)
- Fertilizer & soil additives
- Water
- Chemicals (Plant protection products and other inputs)
- Waste management
- Energy efficiency
- Biodiversity
- Air/noise
- Training
- Documents & records
- Review of Practices

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ENVIRONMENTAL MANAGEMENT MODULE

Requirement	Category	Verification Statement	Self / Auditor Comments	Compliance Status
Planting Material				
Diseases or pest-resistant planting material selected to minimize use of chemicals	Minor	Selection criteria available		
The planting material selected based on compatibility with soil type, soil fertility and so that use of additional nutrient supplying chemicals is avoided.	Minor	Criteria of planting material recorded/ visual/ interviews		
Soils and Substrate				
The production practices selected to be suitable for soil type and not increase risk of environmental degradation	Major	Verify production practices		
Where possible soil maps used to plan for crop rotation, or a fallow period to increase soil fertility encouraged.	Minor	Plans based on soil maps		
Production practices to improve/ maintain soil structure & soil compaction used to avoid erosion.	Major	Visual check		
Chemicals used to sterilize soils and substrates may be used and a record kept.	Critical	Records		

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ENVIRONMENTAL MANAGEMENT MODULE

Requirement	Category	Verification Statement	Self / Auditor Comments	Compliance Status
Energy Efficiency				
Use of electricity and fuel to be reviewed to ensure that efficient operation practices implemented	Major	Electricity and fuel consumption records over time		
Machine & equipment maintained in good condition to ensure the efficiency of operation and save energy.	Minor	Maintenance records/ fuel consumption records		
Biodiversity				
Production plan to comply with country regulations covering protected plant/ animal species & preserve native plant/ animal species, including native vegetation areas, wildlife corridors & vegetation areas on or near bank of waterways.	Major	Production plan		
Measures applied to control/protect feral animals.	Minor	Visual & interview		
Air/Noise				
If offensive odour, smoke, dust or noise generated due to production practices, management action taken to minimize the impact on neighboring property and surrounding areas.	Major	Mitigating action documentation, visual & interview		

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3. Worker Health, Safety & Welfare Module

The module is grouped into 7 clauses and 29 sub clauses for ensuring workers well being. This specifically addresses to the safety of the Worker in the farm and not of the PRODUCE

These are:

- Chemicals
- Working conditions
- Personal hygiene
- Worker welfare
- Training
- Documents & records
- Review of practices



Worker - Any person who works in the farm including adult family members, permanent, temporary/casual/sub-contracted labourer is a worker

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WORKER HEALTH, SAFETY AND WELFARE MODULE

Requirement	Category	Verification Statement	Self / Auditor Comments	Compliance Status
Personal hygiene:				
Farmers and workers to be trained on personal hygiene practices for ensuring own health & well-being.	Major	Training records or Interviews		
Written instructions on personal hygiene practices to be provided to workers and displayed in prominent locations.	Major	Written instruction display		
Medical checkup of workers at six monthly intervals done and records kept for 5 years.	Minor	Records of medical check-up verified		
Toilets and hand and body washing facilities to be readily available and maintained in hygienic condition	Major	Visual assessment		
Sewage disposed of in a manner to minimize risk of contamination to workers.	Critical	Visual assessment and interviews		
Where employers are to provide health cover to workers, any serious health issue to be reported to appropriate authorities.	Major	Records		
Measures applied to minimize the access of domestic/ farm animals to production sites & around handling, packing and storage areas.	Major	Visual assessment		

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WORKER HEALTH, SAFETY AND WELFARE MODULE

Requirement	(Category)	Verification Statement	Self / Auditor Comments	Compliance Status
Worker welfare				
Workers treated equally in all aspects.	Major	Worker interview		
Workers not exploited because of gender, age, race or other reasons	Major	Worker Interviews		
Where possible, living quarters to be suitable for human habitation and contain basic services and facilities including clean food storage areas, designated eating areas, hand washing facilities and drinking water	Major	Quarters visited		
The minimum working age, working hours and minimum wages shall comply with country regulations.	Critical	Payment Ledger & interviews of workers		

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WORKER HEALTH, SAFETY AND WELFARE MODULE

Requirement	Category	Verification Statement	Self / Auditor Comments	Compliance Status
Training				
Workers should be informed about the risks associated with health and safety when working at sites.	Major	Workers interview		
Workers shall be trained and have appropriate knowledge in areas of their responsibility such as vehicles, tools and equipment operation, accident and emergency response, safe use of chemicals and personal hygiene	Major	Training records or workers interviews		
The training needs shall be reviewed once a year	Minor	Review records		

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4. Produce Quality Module

The module is grouped into 10 clauses and 12 sub clauses covering best practices to minimize harmful effects of production and production practices to ensure produce quality as enumerated below:

- Quality plan
- Planting material
- Fertilizer & soil additives
- Water
- Chemicals
- Harvesting & handling produce
- Traceability & recall system
- Training
- Documents & records
- Review of practices

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PRODUCE QUALITY MODULE

Requirement	(Category)	Verification Statement	Self / Auditor Comments	Compliance Status
Harvesting and handling produce				
Maturity index used to determine the appropriate time to harvest produce. Harvesting carried out at the coolest time of day - early morning.	(Major)	Maturity index and Harvesting records		
The equipment, containers, liners used to be suitable, used appropriately for harvesting & be clean. Container not overfilled. Liners to cover rough surfaces. Containers covered to reduce moisture loss. Containers not stacked on top of each other unless so designed.	(Major)	Visual assessment		
Produce to be placed in shade and leave field as early as possible.	(Major)	Visual assessment		
Handling and packaging produce				
Clean water used to handle, wash & treat produce, water changed regularly to avoid spoilage organisms damaging the produce	(Major)	Visual observation		
Excessive drops and impacts to be avoided to minimize mechanical damage to produce	(Major)	visual assessment		
Packing & storing to be under shade & in cool places. Produce not to be placed directly on soil or floor.	(Major)	visual assessment		
Produce to be graded/ packed according to the customer or market requirements.	(Major)	Packing QC records & visual		

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PRODUCE QUALITY MODULE

Requirement (Category)	(Category)	Verification Statement	Self / Auditor Comments	Compliance Status
Storage and transport:				
Produce to be quickly transported to destination. If a long wait for transport, produce to be held at lowest temperature possible.	(Major)	Visual checks/ Transport records		
Produce to be covered during transportation and maintained at appropriate temperature to avoid quality loss.	(Major)	Visual checks/Transport records		
Checking for cleanliness and removing all sources of contamination to done. Mixing incompatible produce during transportation to be avoided.	(Major)	Visual checks/Transport records		

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PRODUCE QUALITY MODULE

Requirement	Category	Verification Statement	Self / Auditor Comments	Compliance Status
Traceability and recall system				
Produce from different sites (as applicable) should be identified by name/ code, and the same placed on the containers and suitably recorded. A record kept of the date of supply, quantity of produce and destination of each consignment.	Major	Records of traceability and drawing sample to check one-step forward and one-step backward		

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GAP Compliance/ Verification Criteria, Control Points and Checklists

QUESTIONS AND DOUBTS



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EXERCISE 2

CHECKLIST DEVELOPMENT



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MODULE III ESTABLISHMENT OF A NATIONAL IMPLEMENTATION STRUCTURE FOR GAP IN A COUNTRY

Session 10 Options and structure for
implementing GAP in a country

Session 11 Guidance for establishing a scheme
owner

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Session 10

Options and Structure for Implementing GAP in a country

231

Objectives

To understand the

- options for implementing GAP
- structure for implementing GAP in a country
- status and decisions needed by a country to implement GAP

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Contents

- International scenario;
- Regulatory and voluntary options;
- Structure for implementing GAP in a country; and
- Status and decisions needed by a country to implement GAP

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International Scenario

- International trade governed by WTO agreements
- Rules for Standards and Conformity assessment laid down in TBT/SPS agreements
- WTO Agreements allow regulations on grounds of national security, prevention of deceptive trade practices, environment, health and safety - standards enforced by law – product requirements, systems approach – GAP/GMP/GHP/HACCP in food/GMP in drugs
- Government responsibility to protect health and safety of its population – and therefore enforce technical regulations
- Typical sectors – food, drugs, electrical appliances, electronics/IT/telecom goods. toys

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GAP Implementation in SAARC Countries - Emerging Structure

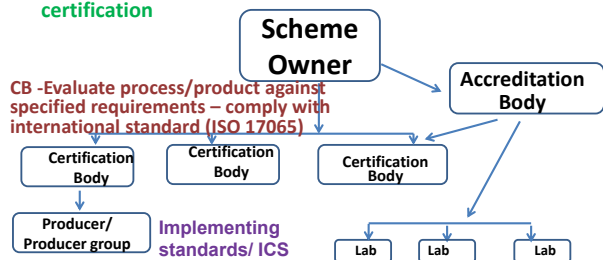
Government	Scheme Owner (also referred as CA)
Government/Regulatory Body/NSB through Technical Committee	Publication of National Standard on GAP - requirements to be fulfilled by farmer
Certification Body(s)	Certification of producers
Accreditation Body	accreditation of CBs
Producers	Follow the standard and get certified

In voluntary regime –Government and RB as ‘Scheme owner’ (also referred as CA – Competent Authority)

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Players in a GAP scheme

Accreditation Body – to testify competence of CBs used in the scheme
Scheme owner – owns standard & scheme & logo; responsible for implementing the scheme
International system – under the aegis of IAF, ABs comply with ISO 17011 – accreditation for MRA for CB or authorize ISO 17065 relevant to product/process/service certification



Labs - testing of pesticide residue, microbiology, heavy metals etc and accredited to ISO 17025

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Regulatory and voluntary

Adoption of mandatory standards

- Responsibility of the government to ensure food safety for consumers;
- One of the means is through enactment of legislation;
- A regulatory body, an arm of the government, primarily enforces the law in the food sector - can also frame standards as a part of the regulations. These are applicable, usually as mandatory standards.
- Alternatively, a national standards body (NSB) prepares voluntary national standards;
- The government or a regulatory body may adopt the national standard as a mandatory standard.

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Regulatory and voluntary

Adoption of voluntary standards

- Voluntary standards are principally developed in partnership with stakeholders; market driven with a choice to the agriculture, industry or trade to implement them or not.
- Voluntary standards with respect to food safety during primary production stages in agriculture, animal husbandry etc the world over are common - example International Featured Standards (IFS), British Retail Consortium (BRC) global standards, and GLOBALG.A.P. standards.
- Many countries have adopted voluntary standards, either owned by NSB or by other agencies.

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Regulatory and voluntary

Other options

- GAP standard through regulation with compulsory implementation;
- Voluntary scheme operated by governmental agency or any other agency authorized by the government, with adoption of a national voluntary standard. Such an agency is known as the Scheme Owner.

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Status & decisions needed by Country

- Whether voluntary or mandatory implementation
- Structure to be established for implementing GAP
- Decision on SO & Department/ Secretariat responsible
- Decision on the CB – government/ private; single/ multiple
- Decision on approving mechanism for CB – SO/AB
- Constitution of multi-stakeholder Committees to develop and oversee operation of Scheme - *Steering, Technical and Certification Committees*
- Finalizing standards and scheme documents on GAP – 4 modules – standalone or in combination with others with progressive implementation of modules based on country/ producer priorities
- Deciding and developing the certification mark/logo

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Steps for Implementing GAP in Countries

- Government (Ministry or department), a regulatory body or NSB prepares country specific standard on GAP (based on GAP scheme in Volume 1 of this publication);
- Government introduces a scheme for GAP implementation by producers;
- Certification Body(s) established, or if already exists in the country, recognized by the Scheme Owner for certifying producers according to the GAP Standard and Scheme;
- For certification, international standards, namely ISO/IEC 17065 applicable in addition to Scheme requirements; and
- CB(s) to obtain accreditation from Accreditation Body/ approval from SO

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Elements of the GAP Scheme

- **GAP standard** - SO through technical committee having subject-matter specialists prepares GAP Standard – requirements to be fulfilled by farmer - stand alone document – any farmer can implement– certification not a necessity.
- **Conformity Criteria** – recognizing 100% compliance not possible, requirements classified into those essential, and deviations acceptable
- **Governing structure** – decision making and supervision for implementing GAP – Scheme Owner, Committee structure
- **Certification process** – procedure for evaluation, verification and certification - uniformity in certification when multiple CBs – individual farmer – group certification – beneficial to small and marginal farmers
- **Requirements for Certification Body(s)** - Competence of CB – Accreditation – Accreditation Body (AB) – in absence of AB, Scheme Owner may perform this function - ISO/IEC 17065.
- **Rules for use of of Certification Mark/Logo.**

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Options and Structure for Implementing GAP in a Country

QUESTIONS AND DOUBTS



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Session 11

Guidelines for Establishing Scheme Owner

244

Session Objectives

- Understand the concept of scheme and scheme owner and the roles and responsibilities of a SO;
- Guide the decision maker in the country in identifying the appropriate SO;
- Guide SO on documents required to implement the scheme
- Guide SO on the rules for use of a certification mark/ logo

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Contents of the Module

- Concept of Scheme and Scheme Owner (SO)
- Options for and requirements of the SO
- Roles and responsibilities of SO
- Documentation for a SO
- rules for use of a certification mark/ logo

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Concept of Scheme and Scheme Owner

Scheme consist of criteria/standards to be fulfilled, conformity assessment infrastructure and process, governing structure for decision making, certification mark....

Scheme Owner

An organisation or body identified by country responsible for setting up and operationalizing the system/ scheme in a country (to be nominated by the government of the country)

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Scheme Owner (SO) - Options

- **Government**
 - Ministry directly or regulator if has agriculture in its domain (other suitable organization engaged in activities relating to agriculture especially quality issues in agriculture);
 - also referred to as Competent Authority; and
 - Positive – government endorsement of scheme automatic – incentivizing by government easier
- **Alliance /association/ inter-professional body** - collective agreement between independent economic units sharing certain objectives – some form of collective organization or group (association/ inter-professional body);
- **National Standards body**
- **Accreditation Body;**
- **New organization** may be established for setting up & implementing Scheme

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Requirements of SO ...1/2

- Should be a **legal entity** – Govt bodies legal entity by virtue of status
- identified organization needs to have a **mandate** for introducing, upgrading and/or internalizing quality in agriculture and/or horticulture
- ideally organization to be a **non - profit body**
- No **conflict of interest**
- Able to maintain **confidentiality** of information

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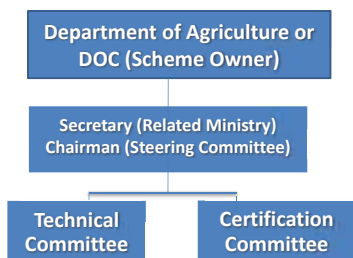
Requirements of SO ...2/2

- **Capacity and arrangements to be appropriate**, e.g. for range of activities & schemes undertaken & in geographic regions in which scheme operates.
- **Adequate arrangements** (e.g. Insurance or reserves) to **cover liabilities** arising from its activities
- **Financially stability** with **adequate resources** for operation of Scheme
- **Assume full responsibility** for the objectives, content & integrity of scheme
- **Capacity to maintain scheme & provide guidance** when required

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Roles & Responsibilities of the SO ...1/4

- Establishment of Governing Structure for implementing
 - governance & decision making mechanisms



Note - SO may have a single committee dealing with all the matters.

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Roles & Responsibilities of the SO ...2/4

- **Development, review, maintenance and updating the Scheme** - including standards, certification and accreditation system, criteria, rules, procedures, management requirements – consider feedback, changes in parent documents/ standards, transition periods;
- Adopt a “**GAP Certification Mark**” or **Logo** and arrange for its registration (SO owns Certification mark).
- **Approve AB/ CBs** authorized to accredit/certify under scheme
 - If no AB in country, external AB used or SO perform these function
 - Accord formal approval to CBs & certified producers prior to their use of the Mark
- **Supervision** – all elements – ABs, CBs, certified farmers/farmer groups – surveillance plan – Integrity audits
- **Organise regular meetings of Committees** - Steering, Technical, Certification Committees

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Roles & Responsibilities of the SO ...3/4

- **Complaints handling** – all levels (stakeholders, public) – regarding quality of produce or scheme operation - CBs, ABs – as per international standards (See ISO 10002) – details on website of SO
- **Handling of appeals** – any decision of SO/ AB/ CBs - have system of handling appeals as per international standards – for SO decision, an independent appeals panel
- **Capacity Building** of resources (training/ WS modules and trainings) for sensitization/better implementation
 - Certification bodies (auditors; technical reviewers)
 - Consultants
 - Farmers, clients, operators and other stakeholder
 - Line departments of the government
- **Publicise/ promote scheme** for ensuring transparency, understanding and acceptance.
- **Updating information** to the SO website.

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Roles & Responsibilities of the SO ...4/4 Monitoring and evaluation of the Scheme

- A mechanism to ensure that all requirements of the scheme are met by the certified entities (producer/group producers/ processors/ exporters), CBs and the AB.
- Focus to ensure confidence of the stakeholders that requirements of the Scheme are followed by all players at all given time with consistency and accuracy.
- A surveillance plan with timetable, documentation, a dedicated team of assessors to assess the certified entities, CBs, AB as considered necessary from time to time to exercise supervision over the Scheme
- Decision making mechanisms on review of reports of such assessments including imposition of sanctions in case deviation observed during assessment by SO team.

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Scheme Owner - Safeguarding Confidentiality

- A policy and legally enforceable arrangement to safeguard the confidentiality of information.
- Arrangements to ensure no breach of information during implementation of the scheme.
- A Designated Person in SO with responsibility to ensure maintenance of confidentiality of system at all times and that confidentiality statements are signed by all personnel affiliated with SO.
- Everybody, government or private, on acceptance of being part of the SO (in connection with scheme) shall sign a confidentiality and non-disclosure undertaking on a prescribed format - SO secretariat, Advisory Board appointees, any SO Committees, or employees of a CB or AB.

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Governing Structure

❑Composition and Terms Of Reference of Committees – Steering, Technical, Certification:

General Principles :

- **Quorum:** at least “50”% members of the Committee to constitute the quorum for a meeting.
- **Representation** of a balance of interests - no single interest predominates
- **Key interests** includes rep. of regulatory bodies/other government agencies, NSB, user/producers/ industry associations, AB & CB, laboratories, academic/ research bodies, consumer organisations etc.
- **Individual experts** – care to avoid any conflict of interest.
- Desirable to have **Principal/ Alternate** members - attendance & continuity

Meetings : frequency at least once in every six months.

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Terms of Reference

❑Steering Committee

- Overall development, modification and supervision of Scheme
- Deciding on recommendations of Technical/Certification Committee
- Constituting any other committees, as needed

❑ Technical Committee

- Develop & maintain standards/technical documents needed by SO
- National Interpretation of the clauses, if required
- Defining the certification criteria, and
- Resolving any related issues

❑ Certification Committee

- Develop, maintain & revise certification process
- Develop, maintain & revise CB requirements for scheme operation
- Develop guidance document to assist producers to apply for certification
- Design the certification marks, if any
- Develop, maintain & revise rules for use of certification mark
- Resolve any issue relating to certification

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Certification Mark or Logo and its Usage

General aspects:

- The GAP Certification Mark or Logo is a protected Mark owned by SO
- More than one Mark may be approved by SO which shall be distinct for each standard used for certification.
- All certified producers/groups approved by SO are eligible to use the Mark.
- Before commencing use of Mark, a legally enforceable agreement to be signed
- Rules for use of the Mark to be included in the agreement.

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Certification Mark or Logo and its Usage

Rules:

- A photographic reduction or enlargement of the Mark may be used.
- The Mark shall not be applied on produce nor imply that produce itself is certified – unless backed by testing
- The Mark may be used in a manner to imply that farm produce has been produced using good practices or is from a GAP certified farm.
- It may also imply that processes of certified farms are in conformity with certification criteria of the scheme.
- The Mark may used on any document accompanying certified produce along with address of certified farm to indicate that produce is from GAP certified farm.

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Certification Mark or Logo and its Usage

Rules (contd...):

- The Mark may be used in publicity material, pamphlets, letterheads or stationery or to promote awareness of scheme
- Mark to be used only by certified farm(s).
- No misleading claims made with respect to the Mark.
- The producer/group under any sanction by CB shall not use the Mark in any form
- CB shall withdraw the certification if no suitable action is taken against incorrect use of the Mark.

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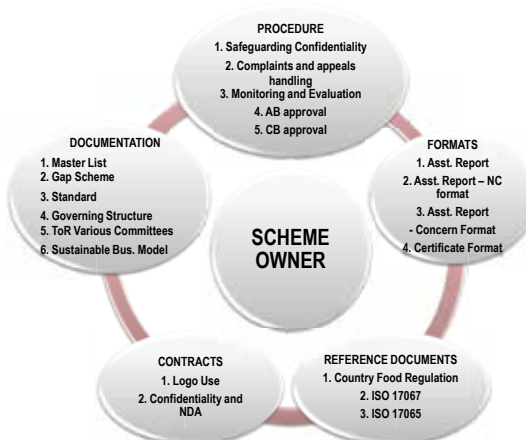
Certification Mark or Logo and its Usage

Rules (contd...):

- CB may take appropriate legal action on advise of SO.
- CB shall monitor the use of Mark during surveillance to assist SO in protecting integrity of the Mark.
- CB shall take suitable action against the clients in case they infringe the provisions of ISO 17065 and the requirements of the Scheme.
- The certified producer shall not use the mark in any manner as to bring SO into disrepute.

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Scheme Owner: Documentation



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Guidelines for Establishing Scheme Owner

QUESTIONS AND DOUBTS



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MODULE IV GAP CERTIFICATION & ACCREDITATION

Session 12 Importance of GAP certification and accreditation

Session 13 Criteria for Selection of an Accreditation Body for GAP

Session 14 Establishment of a CB for GAP

Session 15 GAP Certification Process

Session 16 Auditing and auditing techniques

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Session 12

Importance of GAP certification and accreditation

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Session Objectives

To understand

- what is conformity assessment, accreditation and certification;
- the accreditation requirements for a CB and test laboratory; and
- the benefits of accreditation and certification.

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Contents

- Some definitions - conformity assessment, certification and accreditation;
- Accreditation/ approval of certification body(ies)
- Accreditation/ approval of labs
- Benefits of GAP certification and accreditation.

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References in this Session

- **ISO/IEC 17000:2004** Conformity Assessment – Vocabulary and general principles
- **ISO/IEC 17011:2004** Conformity Assessment – General Requirements for accreditation bodies accrediting conformity assessment bodies
- **ISO/IEC 17065:2012** Conformity Assessment - requirements for bodies certifying products, processes and services
- **ISO/IEC 17067:2013** Conformity Assessment — Fundamentals of Product certification and guidelines for product certification schemes

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Conformity Assessment

- Demonstration that specified requirements relating to a **product, process, system, person** or body are fulfilled
 - *NOTE 1 The subject field of conformity assessment includes activities such as **testing, inspection and certification**, as well as the **accreditation** of conformity assessment bodies*
 - *NOTE 2 The expression “object of conformity assessment” or “object” is usedto encompass any particular material, product, installation, process, system, person or body to which conformity assessment is applied. A service is covered by the definition of a product*
- **Conformity assessment body** - body that performs conformity assessment activities

- ISO 17000

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Certification (ISO definition)

- Third-party **attestation** related to products, processes, systems or persons
 - *NOTE 1 Certification of a management system is sometimes also called registration.*
 - *NOTE 2 Certification is applicable to all objects of conformity assessment except for conformity assessment bodies themselves, to which accreditation is applicable.*
- **“Attestation”** - the issuance of a statement based on a decision following review that fulfilment of specified requirements has been demonstrated.

- ISO 17000

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Certification (Codex definition)

Certification is the procedure by which **official or officially recognized certification bodies** provide written or equivalent **assurance** that foods or food control systems **conform to requirements**.

Certification of food may be, as appropriate, based on a range of inspection activities which may include continuous on-line inspection, auditing of quality assurance systems, and examination of finished products

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ACCREDITATION

- Third-party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks (ISO 17011)
- Accreditation process ensures that **CB certification practices are acceptable**, typically meaning that they are **competent to test & certify** third parties, behave **ethically** and employ suitable **quality assurance**
- Basis of accreditation – generally international standards on conformity assessment developed by ISO/ IAF or ILAC guidance documents
- Primary purpose – facilitate trade by acceptance of certification/inspection/testing worldwide

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WTO/TBT Agreement

Article 6

“Members shall ensure, whenever possible, that results of **conformity assessment procedures** in other Members are accepted even when those procedures differ from their own, provided they are satisfied that those procedures offer an assurance of conformity with applicable technical regulations or standards equivalent to their own procedures and technical competence of the relevant conformity assessment bodies in the exporting Member, in this regard, has been verified, for instance through **accreditation**, with relevant guides or recommendations issued by international standardizing bodies so that confidence in the continued reliability of their conformity assessment results can exist.”

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Accreditation Standards

ISO CASCO - ISO's policy development committee on conformity assessment

- **ISO 17020** Conformity Assessment - Requirements for the operation of various types of bodies performing inspection
- **ISO 17021** Conformity assessment - Requirements for bodies providing audit and certification of management systems
- **ISO 17024** Conformity assessment - Requirements for bodies operating certification of persons
- **ISO 17025** General requirements for the competence of testing and calibration laboratories
- **ISO 17065** Conformity assessment - Requirements for bodies certifying products, processes and services.
- **ISO 22003** Food safety management systems - Requirements for bodies providing audit and certification of food safety management systems
- **ISO 27006** Information technology - Security techniques - Requirements for bodies providing audit and certification of information security management systems
- **ISO 14065** – Greenhouse gases - Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition

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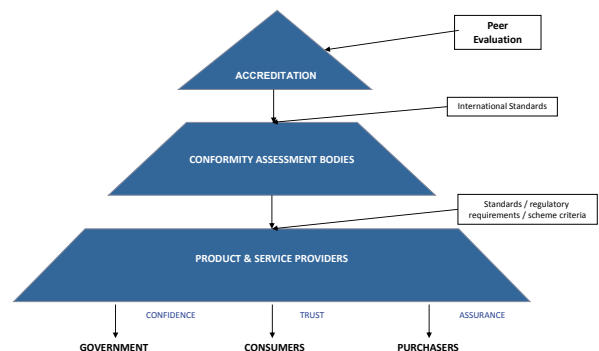
Global Vision



- A **single worldwide program of conformity assessment** which reduces risk for business, regulators and the consumer, by ensuring that accredited services can be relied upon.
- Government and Regulators relying on the IAF and ILAC Arrangements (MLA/MRA) to further develop or enhance trade agreements.
- To support the freedom of world trade by eliminating technical barriers, realizing the free-trade goal of *‘Tested, Inspected or Certified Once and Accepted Everywhere’*

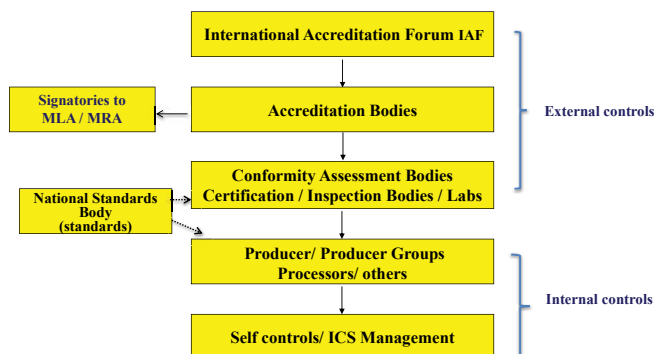
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Conformity Assessment Framework



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Structure in relation to Standards and Conformity Assessment



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International Equivalence

- International Accreditation Forum (IAF)/ International Laboratory Accreditation Cooperation (ILAC) - the world associations of ABs and other bodies interested in Conformity Assessment (CA) in the fields of management systems, products, services, personnel and others and calibration, testing and inspection respectively
 - Primary function to develop a single worldwide program of CA which reduces risk for business and its customers by assuring them that accredited certificates may be relied upon.
 - Accreditation assures users of the competence and impartiality of the body accredited.
- ABs need to comply with ISO 17011 – Peer Assessment by regional bodies PAC and APLAC – if successful, sign PAC MLA or APLAC MRA and ultimately signatory to MLA under IAF for certification bodies and MRA of ILAC for inspection and testing bodies

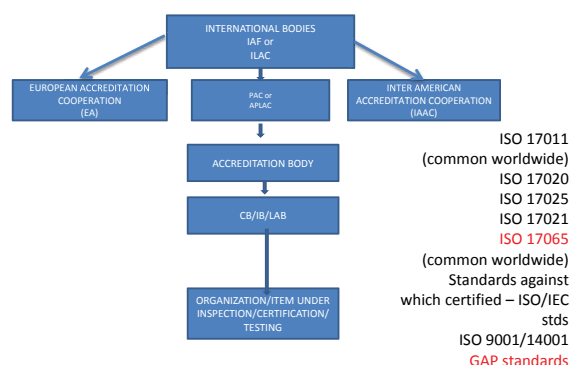
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How Equivalence Works

- IAF/ILAC evaluate regional bodies to IAF/ILAC criteria-every 4 years
- Regional Bodies evaluate individual accreditation bodies for each programme – peer evaluation - ISO 17011 – international standard for ABs – every 4 years
- Successful completion of peer evaluation – sign multilateral recognition arrangement of PAC/APLAC
- Based on above sign multilateral recognition arrangement of IAF/ILAC
- Internationally equivalent

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Equivalence Framework



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GAP Certification

- Conformity assessment by an independent third party body of practices on the farm(s) that minimize contamination during the production process of farm produce. The practices adopted by the farm are according to the requirements of the GAP Scheme and ISO 17065;
- An initial full assessment of GAP implementation;
- For certification with respect to requirements for food safety, environment management, safety and welfare of farm workers and produce quality.
- Followed up by surveillance visits

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ISO 17065

- 1 Scope
- 2 Normative references
- 3 Terms and definitions
- 4 General requirements
 - 4.1 Legal and contractual matters
 - 4.2 Management of impartiality
 - 4.3 Liability and financing
 - 4.4 Non-discriminatory conditions
 - 4.5 Confidentiality
 - 4.6 Publicly available information
- 5 Structural requirements
 - 5.1 Organizational structure and top management
 - 5.2 Mechanism for safeguarding impartiality
- 6 Resource requirements
 - 6.1 Certification body personnel
 - 6.2 Resources for evaluation
- 7 Process requirements
 - 7.1 General
 - 7.2 Application
 - 7.3 Application review
 - 7.4 Evaluation
 - 7.5 Review
 - 7.6 Certification decision
 - 7.7 Certification documentation
 - 7.8 Directory of certified products
 - 7.9 Surveillance
 - 7.10 Changes affecting certification
 - 7.11 Termination, reduction, suspension or withdrawal of certification
 - 7.12 Records
 - 7.13 Complaints and appeals
- 8 Management system requirements
 - 8.1 Options – A or B (establishes & maintains a MS as per ISO 9001)
 - 8.2 General MS documentation(A)
 - 8.3 Control of documents
 - 8.4 Control of records
 - 8.5 Management review
 - 8.6 Internal audits
 - 8.7 Corrective actions
 - 8.8 Preventive actions (Option A)

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Testing (Laboratories)

- **Role** – test for safety, quality and genetic requirements; also seed, soil and water samples
- **Accredited** against ISO 17025 General requirements for the competence of testing and calibration laboratories
- **ISO 17025**

1. Scope

- General requirements of competence for testing, calibrations, including sampling
- Using standard/non-standard & laboratory-devd methods
- Applicable to all organizations doing tests & calibrations.
- Compliance with regulatory/ safety requirements on labs operation not covered

2. Normative references

3. Terms and definitions

4. Management requirements

5. Technical requirements

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ISO/IEC 17025:2005

4. Management requirements

- Organization
- Management system
- Document control
- Review of requests, tenders & contracts
- Subcontracting of tests & calibrations
- Purchasing services & supplies
- Service to the customer
- Complaints
- Control of nonconforming testing and/or calibration work Improvement
- Corrective action
- Preventive action
- Control of records
- Internal audits
- Management reviews

5. Technical requirements

- Personnel
- Accommodation and environmental conditions
- Test & calibration methods & method validation
- Equipment
- Measurement traceability
- Sampling
- Handling of test & calibration items
- Assuring the quality of test and calibration results
- Reporting the results

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Benefits of GAP Certification

- Ensuring quality and safety of product throughout the food chain
- Maintaining consumer confidence in products
- Gaining market access
- Protection of own-brands of super markets
- Environmental protection and social welfare an added advantage

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Benefits of Accreditation

- **Recognition of certification/inspection/ testing by a country's CAB in other countries**
➢ ABs signatory to IAF MLA – ILAC MLA – certificates/test reports issued by accredited CABs accepted worldwide
- **Regulators accepting reports** from IAF/ILAC members
- Increasing use in **G-to-G MRAs** – ASEAN MRAs, India-Singapore MRA
- **Reduces risk for government, business and customers** - international system - ensures through regular surveillance that CABs both independent & competent
- Accreditation is preferred mechanism for **ensuring public confidence** in reliability of activities that impact on health, welfare, security, environment
- Accreditation gives **consumers confidence** through consistent standards in quality/ safety of products

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Importance of GAP certification and accreditation

QUESTIONS AND DOUBTS



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Session 13

Criteria for Selection of an Accreditation Body (AB) for GAP

288

Session Objectives

- To understand what is the role of an accreditation body, the requirements that an AB needs to meet in terms of competence and compliance with requirements, and how to select an AB in relation to GAP

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Contents

- Role of an accreditation body
- Requirements of an accreditation body
- Criteria for selection of an accreditation body

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Role of an Accreditation Body

- Accreditation/approval of CBs for the GAP Certification Scheme (labs for testing) – indicate formal demonstration of CBs competence to carry out specific conformity assessment tasks
- Ensure recognition of certification by a country's CB in other countries
- Reduce risk for government, business and customers – by ensuring through regular surveillance that CB is both independent and competent
- Accreditation enhances the confidence of consumers by ensuring consistent application of standards
- Facilitate worldwide trade by acceptance of certification/ inspection/ testing

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Accreditation Body (AB) requirements

- The AB shall comply with requirements of ISO/IEC 17011 General requirements for accreditation bodies assessing and accrediting CABs and be a signatory with IAF.
- The AB shall:
 - be a legal entity; it may be governmental or private
 - have authority & responsibility for decisions on accreditation, including the granting, maintaining, extending, reducing, suspending and withdrawing of accreditation;
 - have a documented structure with defined roles and responsibilities for its personnel and committees, if any.
 - be impartial – not engage in consultancy, CA or any other activity which has a bearing on their impartiality.
 - be free from conflict of interest in relation to their related bodies who may be linked by common ownership, management, etc.
 - Have adequate financial resources and provide for any liability that may arise
 - maintain confidentiality

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Accreditation Body (AB) requirements

- The AB shall: (...Contd)
 - Have procedures for internal audit, management review, corrective actions and preventive actions.
 - have sufficient competent personnel (internal, external, temporary, or permanent, full/ part time) having education, training, technical knowledge, skills and experience necessary for handling the type, range and volume of work performed;
 - have a process to define the competence of its assessors/ other personnel involved in accreditation -
 - follow a defined assessment process covering document review, on site office assessment including branches of the CB, if any, and witnessing of a sample of CB's audits/inspections and auditors/inspectors.
 - have a system for handling complaints and appeals.

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Criteria for Selection of an AB

- The SO shall give first preference to AB of the country.
- In case, the AB though present in the country, does not have any experience in GAP nor a scheme for accreditation of CBs for GAP, SO may discuss with the AB to understand timelines for creating a programme for GAP CBs.
- If the country does not have an AB or the AB is not in a position to set up a scheme for GAP, the SO may either approve the CB (based on ISO 17065 and the additional requirements prescribed in Session 14) **OR** take on an AB from outside the country
- In case, the National AB is not a signatory to IAF MLA,
 - it may pose challenge in getting GAP certification accepted across borders
 - it may also pose challenges if the national GAP seeks to be benchmarked with international Schemes

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Accreditation Bodies – Documents to be maintained:

- Quality manual
- Accreditation criteria for product certification bodies
- Accreditation procedure for product certification bodies
- Accreditation procedure for GAP certification scheme
- Conditions for use of accreditation symbol or logo
- Complaints procedure
- Appeals procedure
- Assessor code of ethics
- Document control procedure
- Structure and role of committees
- Document control procedure
- Procedure for internal audit
- Procedure for management review
- Criteria for assessors, experts and other staff
- Procedure for maintenance of records
- Procedure for confidentiality
- Assessment process
- Witness assessment process
- Establishing new schemes
- Procedure for preventive action
- Assessment reporting

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CRITERIA FOR SELECTION OF AN ACCREDITATION BODY (AB) FOR GAP

QUESTIONS AND DOUBTS



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Session 14

Establishment of a Certification Body (CB) for GAP

297

Session Objectives

This session explains functions and requirements of a certification body and how to set up the same to meet international accreditation requirements and apply for accreditation.

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Contents

- What is a certification body (recap)
- Who can set up a certification body
- Functions of a certification body;
- Principles of certification;
- Establishment of a certification body and its requirements (as per ISO 17065 and additional requirements;
- Documentation to be maintained by a certification body;
- Steps for seeking accreditation

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References in this Session

- **ISO/IEC 17000:2004** Conformity Assessment – Vocabulary and general principles
- **ISO/IEC 17065:2012** Conformity Assessment - requirements for bodies certifying products, processes and services
- Certification process of the GAP Scheme

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Certification Body

- **Certification body (CB)** - a third-party conformity assessment body operating certification schemes.
 - **Conformity assessment** - means checking that products, materials, services, systems or people measure up to the specifications of a relevant standard.
- It is an independent entity that is contracted by the producer or producer group to evaluate the compliance of their GAP to the requirements of national standard for GAP and certification requirements in accordance with ISO/IEC 17065 and to issue a registration certificate.
- CB can be a private or governmental body.
- It needs to comply with ISO/IEC 17065:2012 to a set of requirements so that its certification has credibility.

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Who can set up Certification Body

- Anyone
- No legal bar on anyone setting up a certification body
- Can be proprietorship, partnership, society, private or public limited – profit or non profit – governmental or private or non governmental organization – credibility important
- Requirement - people and documentation – unlike laboratory, no equipment or technology except IT tools

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Functions of a Certification Body

- Maintaining a Certification System as per the requirement of the Scheme
- Updating of Scheme information and disseminating it to certificate holders
- Organizing resources – HR, Infrastructure
- Certification of applicants
- Handling complaints and appeals
- Mechanism to ensure publically accessible information is present
- Market intelligence to ensure no misuse or misinterpretation

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Principles of Certification

- Impartiality
- Competence
- Confidentiality and openness
- Access to information
- Responsiveness to complaints and appeals
- Responsibility

Annex A of ISO/IEC 17000:2004

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Establishing a CB

- Decide on the entity that shall function as a GAP CB
 - Can be governmental or can be private
 - The entity should be a legal entity and define its structure and organization to ensure it meets with the requirements of independence, impartiality and non-conflict of interests
 - Ensure its financial stability and arrange for liability cover
- Set up process and procedures as per ISO 17065:2012 and additional criteria
 - ISO 17065 contains requirements for the competence, consistent operations and impartiality of products, process and service criteria (organization/ management systems/ certification process systems)
- Seek accreditation - Once procedures are documented and implemented for a couple of certifications, apply for accreditation

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ISO 17065

- | | |
|---|---|
| <p>1 Scope</p> <p>2 Normative references</p> <p>3 Terms and definitions</p> <p>4 General requirements</p> <p>4.1 Legal and contractual matters</p> <p>4.2 Management of impartiality</p> <p>4.3 Liability and financing</p> <p>4.4 Non-discriminatory conditions</p> <p>4.5 Confidentiality</p> <p>4.6 Publicly available information</p> <p>5 Structural requirements</p> <p>5.1 Organizational structure and top management</p> <p>5.2 Mechanism for safeguarding impartiality</p> <p>6 Resource requirements</p> <p>6.1 Certification body personnel</p> <p>6.2 Resources for evaluation</p> | <p>7 Process requirements</p> <p>7.1 General</p> <p>7.2 Application</p> <p>7.3 Application review</p> <p>7.4 Evaluation</p> <p>7.5 Review</p> <p>7.6 Certification decision</p> <p>7.7 Certification documentation</p> <p>7.8 Directory of certified products</p> <p>7.9 Surveillance</p> <p>7.10 Changes affecting certification</p> <p>7.11 Termination, reduction, suspension or withdrawal of certification</p> <p>7.12 Records</p> <p>7.13 Complaints and appeals</p> <p>8 Management system requirements</p> <p>8.1 Options – A or B (establishes & maintains a MS as per ISO 9001)</p> <p>8.2 General MS documentation(A)</p> <p>8.3 Control of documents</p> <p>8.4 Control of records</p> <p>8.5 Management review</p> <p>8.6 Internal audits</p> <p>8.7 Corrective actions</p> <p>8.8 Preventive actions (Option A)</p> |
|---|---|

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General Requirements of CB

- **A legal entity** - legally responsible for its activities – if CB is government entity/ department, it is deemed a legal entity
- Have **legally enforceable certification agreement** defining responsibilities of CB & clients including appropriate use of Mark & providing certification status of producer
- **Control use of licenses, certificates & marks of conformity**
- **Impartiality** - a documented policy on safeguarding impartiality - publicise through website – have code of conduct for internal & external persons – ensure objectivity in certification functions - establish Impartiality Committee
- Have adequate arrangements to cover **liabilities** from its operations – have adequate finances for operations
- Maintain **confidentiality** of all client information – mechanism, documented policy, part of the certification agreement.
- **Information publically available** – details of certification scheme, process, fees, rights & duties of clients, handling complaints & appeals, directory of certified producers

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Structural Requirements

- **Safeguarding impartiality** – structure and documented mechanism
- CB to document its **organizational structure** with duties, responsibilities & authorities of management, certification personnel & committees
- **Responsibilities & authority** for all activities to be identified
- Have formal rules of appointment, TORs for any **certification committees**

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Resource Requirements

- CB to employ/ have access to personnel - numbers/ competent
 - Technical personnel for operating GAP scheme;
 - Internal resources (regular/ contracted full time) for: CB's internal systems for GAP scheme; management of certification; Application review; evaluation, review and decision making
 - Undertaking audits – inspectors, team leaders & technical experts (external personnel with written agreement)
- Procedure for management of competencies to be in place for
 - selection, recruitment & authorizing personnel for certification;
 - evaluation of personnel for specific functions;
 - monitoring & measurement of performance of persons
- Records kept on personnel involved in certification process
- Personnel to sign contract for independence, impartiality & confidentiality
- Outsourcing & use of external resources subject to conditions

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Outsourcing Requirements

- CB shall not outsource any activity related to GAP certification work other than **testing**; and
- Sending samples to the CB's **own laboratory** also considered as sub-contracting.
- **CB responsible for:**
 - testing in accredited lab – in house/ independent; accredited for scope; directory of labs maintained
 - documented procedure for sampling, handling and despatch of samples for testing, receipt of test reports and their evaluation;
 - Samples protected from damage, contamination, deterioration and maintenance of integrity.

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Process Requirements

- | | |
|-----------------------------------|---|
| • Application | • Surveillance |
| • Application review | • Changes affecting certification |
| • Evaluation | • Termination, reduction, suspension or withdrawal of certification |
| • Review | • Records |
| • Certification decision | • Complaints and Appeals |
| • Certification documentation | |
| • Directory of certified products | |

Details in next session

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Management Systems Requirements...1/7

2 options

- **Option A** – address requirements
 - General management systems documentation
 - Control of documents
 - Control of records
 - Management review
 - Internal audit
 - Corrective actions
 - Preventive actions
- **Option B** – establishes & maintains a management system as per ISO 9001

Requirements of management systems as per Option A (clause 8.1.2 of ISO 17065:2012) briefly explained in the next few slides

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Management Systems Requirements...2/7

General MS Documentation

- Establish, document & maintain **policies & objectives** for implementing requirements of standard/ certification scheme
- Evidence for **top management commitment** to management system & its effectiveness
- **Responsible person** for establishing, implementing & maintaining management system & reporting to top management
- All documents, processes, systems, records **referenced** in management system
- All personnel to have **access to documents** necessary to their functions

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Management Systems Requirements...3/7

Control of Documentation

- CB shall establish procedures to control all documents (internal/external) that relate to its certification functions
- The procedures to define controls for
 - approving documents for adequacy,
 - reviewing & updating,
 - current revision status identified,
 - available at point of use,
 - remain legible & identifiable,
 - external origin documents identified & distribution controlled
 - Prevent unintended use of obsolete documents

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Management Systems Requirements...4/7

Control of Records

- Records demonstrate that certification procedures effectively fulfilled
- CB shall establish **procedures** for control, identification, storage, protection, retrieval, retention time and disposition of records
- Retention time based on contractual and legal requirements

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Management Systems Requirements...5/7

Management Review

- CB to review management system at defined intervals; **atleast yearly**, records of review maintained
- **Inputs for review** to include – internal/external audit results, feedback from different sources, preventive/ corrective actions, follow up of previous reviews, appeals/complaints, etc
- **Review outputs** – decisions/ actions on improvement of Management systems, improvement of CB towards requirements of standard, resource needs

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Management Systems Requirements...6/7

Internal Audits

- CB to establish **procedures** for internal audits to verify effective implementation of management system
- **Atleast yearly** covering all procedures.
- Ensure outcome of **audit communicated; corrective actions taken** in timely & appropriate manner, opportunities for improvement identified and results documented/recorded

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Management Systems Requirements...7/7

Corrective and Preventive Actions

- CB to establish procedure for identification and management of non conformities and taking corrective and preventive actions
- Take actions to eliminate causes of NCs (Corrective actions) or potential NCs (Preventive actions)
- Procedure for CA to cover identifying, determining cause, correcting, evaluating and implementing actions, and reviewing effectiveness of corrective and preventive actions (CA & PA) taken

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Additional Requirements

- In addition to the requirements mentioned in ISO 17065, a CB needs to meet additional requirements specified in the SAARC GAP Scheme
- Additional requirements are built in as a measure to achieve focus on certain key elements that are CRUCIAL to achieve the objective of the Scheme
- The additional requirements are given in Part III of the Scheme under Section 3. Requirements for Certification Bodies

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Additional Requirements – Details 1/2

- **Website** – All information required to be publicly available shall be through the CB's website only. This includes information such as fee structure, complaints and appeals process, certifications granted, suspended or withdrawn
- **Impartiality committee** - Assigned specific responsibility for safeguarding the CB's impartiality in its certification functions and ensuring that policy and related procedures are effectively implemented
- System of disclosure of any potentially conflicting relationship or situation by all personnel of the CB
- If threat unacceptable (like own subsidiary), certification not to be undertaken

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Additional Requirements – Details 2/2

- **Authority for decision making** – to be identified
- **Internal resources** for some activities – other than onsite audits/inspections – regular employees – on full time contract for one year or more – on part time contract for 2 years or more
- Personnel for evaluation – competence same as auditors/inspectors
- **Inspector competence** – degree or post secondary education in related subject – 5 years work experience in agriculture; 2 years in quality assurance – training in auditing, GAP criteria – 12 days of inspections as trainee
- Monitoring of inspectors on site at least once a year
- No **outsourcing** other than testing – use of external personnel not outsourcing
- **Certification Mark**: CB to ensure that logo is affixed only on off-products such as invoices, business card, letter head, website or any other promotional material as per the scope of the certificate

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Certification Bodies – Documents to be maintained 1/2:

1. QUALITY MANAGEMENT SYSTEM: Manual

- ### 2. POLICY
- Conflict of Interest
 - Impartiality

- ### 3. Contracts
- Sub-contract agreement
 - Observer Conditions

4. ASSOCIATED DOCUMENTS

- Master list of documents
- Document control – revision status
- Brief about country GAP programme
- Opening meeting checklist
- Closing meeting checklist
- Responsibility and competency of programme staff
- GAP scheme
- Standard with Annex 1

5. PROCEDURES

- Document Control
- Internal Audit
- Management Review
- Certification Decision
- Complaints and Appeals
- Impartiality Committee and Risk Analysis
- Training of Personnel
- Non conformance handling procedure
- Updating publically available information
- Preventive and Corrective Action

6. WORK INSTRUCTIONS

- Certification Timelines
- Group Certification
- Farm documents to be ready before audits
- Agreement for group certification
- Documents required for group certification
- Use of Certification Mark
- On-hold suspension, withdrawal and termination

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Certification Bodies – Documents to be maintained 2/2:

7. FORMATS

- Attendance record
- Audit plan
- Internal audit checklist
- CAR form
- Internal audit report
- Application and proposal for certification
- Field specification
- GAP management requirement checklist
- FSM module checklist
- EMM module checklist
- WSHM module checklist
- PQM module checklist
- GR module checklist
- GMO
- File review
- Certification decision
- On-hold, suspension, withdrawal, termination
- Appeals form
- Confidentiality agreement-MFDA-MGAP assignment
- Standard updating
- Off-farm input permission
- Certification committee meeting
- Status of conformance
- GAP certificate format
- Certification agreement
- Certification report

8. EXTERNAL DOCUMENTS

- The country may include any external documents in the listing

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Seek Accreditation

Steps

1. Enquiry
2. Application
3. Pre-Assessment
4. Assessment - office assessment and witness audit
 - opening meeting
 - assessment
 - evaluating results
 - closing meeting
5. Clearance of non conformity
6. Recommendations to accreditation board
7. Evaluation of recommendation & award of accreditation
8. Maintenance of accreditation
9. Extending scope of accreditation

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Establishment of a Certification Body (CB) for GAP

QUESTIONS AND DOUBTS



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Session 15

GAP Certification Process

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Session Objective

The objective of this section is to understand comprehensively the process of GAP certification that is followed by a CB in line with requirements of international standard, ISO 17065 as well as requirements of the GAP Scheme. It will also help to promote uniformity in operation between the CBs, producers and Scheme Owners in different countries.

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Contents

- Applicants for GAP certification
- Certification procedure to cover application and application review; certification agreement; evaluation and certification decision and grant of certification
- Post certification actions including surveillance evaluation, sanctions, changes affecting certification and renewal of certification
- Complaints and appeals
- Records
- Certification fees

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Applicant for GAP Certification

Applicant under GAP Certification Scheme is the producer(s) who can be classified into two categories:

- **Individual producer:** A farmer who owns a farm land
- **Producer group** - a group consisting of two or more producers with a legal status that decide to farm as a group with a common package of practices of cultivation and processing of produce and may apply for certification as a single unit.

Note: For a producer group, the requirements are applicable both for individual farmer member and the group (QMS requirements in the General Requirement Module of the GAP standard for fruits and vegetables).

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Process for individual and Group Certification

Certification Process – The general requirements to be met by both individuals and producers group on-farm are described below:

- **Individual Certification**
 - The certification process involves an initial approval followed by annual surveillance in the farmers field to check for compliance based on the checklists (both for individual producers as well as members of producer groups)
 - The requirements to be met by an individual producer are the requirements of the GAP Standard
- **Group Certification**
 - The group (having 2 or more members) needs to implement requirements as per standard both for individual member farmer and QMS as given in the general requirement module
 - The requirements are covered under certification criteria (Section-5), standard (Section-2), certification process (Section-6), CB requirements (Section-7) & certification mark (Section-8)

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Certification Procedure (explained in the next few slides)

331

Certification Procedure

Application for GAP Certification

- **Application on a prescribed format** – prior to which producer needs to adopt practices for at least three months; conduct self assessment.
 - **Producer information**
 - **General information** - name; address and contact details of producer; proof of legal status (legal entity or certified entity); location of the farm; details of land held and whether under ownership/lease; farm management; details of manpower.
 - **Production information** - production site; annual production area; whether green house or field production; crop cultivated; crop sowing date; total extent of land and extent covered under produce, internal inspection date, name of the internal inspector, external inspection date, harvested quantity and dates.
- A format of application given in next slide*

332

Certification Procedure

Format of application

- Name, address, and contact details of producer;
- Location of the farm;
- farm's management;
- Details - crops cultivated; crops' sowing dates; total extent of land and extent covered under produce;
- Harvested quantity(s) and date(s);
- Internal inspection date, name of the internal inspector;
- External inspection date(s);
- Legal entity (status);
- Management plan;
- Quality Plan

Application format along with information required shall be made available on the website of Certification Body.

333

Certification Procedure

Application Review

- Producer's application is reviewed by designated person - to cover following aspects:
 - information about producer, his facilities, produce to be certified;
 - scope of certification sought is clear and defined;
 - means are available with CB to perform evaluation;
 - CB has competence and capability to perform certification activity;
 - Selection of an evaluation team, evaluator and technical reviewer competent for scope;
 - Any difference in understanding between CB and applicant are resolved, including agreement regarding Compliance/ Verification Criteria

334

Certification Procedure

Application Review (contd....)

Reviewed for adequacy within defined time limit

- Only applications completed in all respects accepted
- If correction needed, immediate notification to applicant
- Acknowledged and producer ID given by CB (complete applications only)
- If instances of misuse of certification mark / conviction by court found subsequently or during review, it may attract disqualification
- For rejected cases, fresh application after gap of 1 year

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Certification Procedure

Certification Agreement

- Contains terms and conditions to be adhered by producer/ producer group in terms of the standard requirements prior to taking up evaluation work.
- Agreement is executed between producer group and CB and is binding on the producer members
- Gives the Farm Management Plan (FMP) as agreed between the producer and the CB;
- Producer required to pledge commitment to implement the agreed FMP for ensuring conformity of produce and processes to the compliance/ verification criteria and the Scheme requirements on a continuing basis; and
- Agreement to have provision for adhering to requirements of certification process even if modified at later stage

336

Certification Procedure

Farm Evaluation

- **Evaluation** - Once producer is registered, CB proceeds as follows:
 - **Pre assessment** (optional) or pre-evaluation - assessed through document review / preparedness for the audit
 - **Offsite review** - to prepare audit plan for farm evaluation
 - **Farm Evaluation** - External QMS / ICS audit carried out by qualified auditor as per audit plan - provided to the auditee (producer group) - structured checklist used - observations recorded against each requirement/control point
 - **Audit observations** given to auditee at end of site evaluation
 - **NCs** listed and explained during closing meeting

337

Certification Procedure

Inspection Duration & Timing

- **Inspection Duration**
 - An operation without produce handling or on farm packing – min 3 hours on site
 - An operation with on farm packing – min 6 hours
 - An operation with produce handling – min 1 day (8 hours).
 - QMS audit for group certification – min 8 hours for a group with < 50 members and one centralized pack house.
- **Inspection timing**
 - Ideal time for inspection is as close to harvest as possible to verify all control points during the crop season.
 - For control points which are not possible to be inspected a follow-up visit may be scheduled or a satisfactory proof submitted by the producer.
 - No certificate will be issued until all control points have been verified and NCs if any satisfactorily closed

338

Certification Procedure

Calculation of Evaluation time

- For initial evaluation – 1 work-day of 8 hours
- For report preparation – minimum 1 work-day
- Depending on complexities of farms and systems, additional 0.5 work-days may be made

339

Certification Procedure

Evaluation

Non-Compliances (NCs)

- NCs are deficiencies observed with respect to the GAP Standards, compliance/verification criteria and other scheme requirements and the deficiencies observed in FMP during the first evaluation.
- Any NC observed during evaluation classified as critical, major or minor depending on their nature and severity.
- These are recorded and producer advised in writing for taking corrective actions.

340

Certification Procedure

Report and Review

- **Evaluation Report**
 - Reflects the conclusions and observations vis-à-vis the objectives of evaluation including the standard and farm management plan.
- **Review**
 - Independent review of the evaluation report is carried out by competent persons in the CB
 - NCs verified for satisfactory compliance before grant of certification

341

Certification Procedure

• Certification Decision

- Sole responsibility of the CB.
- Decision shall be taken by persons independent of evaluation process.
- Impartiality and absence of conflict of interest ensured before entrusting task of certification decision making
- Producers communicated reasons for refusal decision

• Granting of Certificate

- The certificate format predefined with details of validity, scope

342

CERTIFICATE FORMAT

Certificate
Certificate number XXXYNNN

Company/ Farmer Name
Company Address

the Good Agriculture Practices (Maldives)
For the following Product
Scope of Certificate

This certificate is valid from DDMMYY until DDMMYY
The next inspection is due on or before DDMMYY

This certificate is valid for those product(s) and area(s) that have been specified in the annex Certificate Characteristics XXXYNNNA.

The validity of the certificate solely depends on the organisation's continued compliance to indicated standards, which is subject to annual surveillance inspection, and on the status of approval/accreditation at the CB

343

Directory of certified producers

- The CB shall maintain and make publicly available on its website, a directory of valid certifications that shall show the name, the compliance/ verification criteria and scope of certification, geographical location and address, and validity of certification for each certified producer.
- The CB shall display on its website the name(s) of producer(s) under sanctions and those whose certificates have been cancelled.
- The CB shall also have a provision and system for confirming validity of a certificate on request to any stakeholder.
- The CB shall have a procedure for updating information on its website.

344

Post Certification Actions

• Surveillance Evaluation

- Annual surveillance both for individual and group certification shall be conducted before the expiry of certificate. The evaluation process remains the same as in initial process.
- Maximum delay of 1 month is permissible under exceptional circumstances
- Un-announced evaluations shall be carried out in events of MRL failure / customer complaints or in a routine manner

345

Post Certification Actions

Sanctions

- CB imposes sanctions if corrective actions (CAs) are not taken as prescribed. These are :-
 - **Warning:** In respect of NC on GAP
 - **Suspension:** producer not taking CA in respect of NCs
 - **Revocation / cancellation:** producer not taking CA partly or wholly within 6 months or the integrity of product quality is not honored
- CB shall make public the sanction or suspension or cancellation on its website. Suspension not to exceed 6 months – cancellation
- Suspension shall be revoked upon satisfactory verification of CAs

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Post Certification Actions

• Renewal of Certification

To be renewed at the expiry of 3 years validity period – 4 months prior notice to be received by the producer before expiry

- Approach CB in prescribed format with fees, 3 months prior to expiry
- Competent persons of the certification body shall review the performance of the certified unit prior to evaluation process based on the following aspects:
 - a) Evaluation reports and NCs raised and CA
 - b) Suspension of certificate during previous validity period
 - c) Complaints if any
- When a certificate is not renewed, it shall expire at the end of validity period

347

Post Certification Actions

Changes affecting certification

- CB shall ensure that any changes in GAP scheme are communicated to all certified producers for implementation within specified time period and shall also verify implementation of the changes affecting certification
- Certification agreement to include a clause that it is mandatory for the client to implement the changes in the certification process within the specified time.

348

Post Certification Actions

Changes affecting certification

• Change of Location / Ownership / Name

- The certified producer shall inform the CB of any change in the location or cultivation practices or any other on-farm processes
- The CB shall perform on-site evaluation at the new site for the effected changes
- The CB shall endorse the change of premises on the certificate after a successful evaluation both in case of individual farmer and producer group

349

Post Certification Actions

Changes affecting certification

• Extension and/or Reduction of Scope (inclusion of additional crops/members)

- The producer should intimate CB about any inclusion / exclusion of product / producer as per the requirements of the Farm management plan (FMP)
- The CB shall review the application form using a competent evaluator to assess if there are any substantial changes in the FMP
- Based on the evaluation the CB, if needed, conducts a visit to evaluate the proposed change
- The CB records the reasons and the justification for its decision on the extension of scope based on the evaluation
- The extension of scope shall be clearly mentioned in the certificate with the scope change without changing the validity of the previous certificate

350

Certification Fees

- The CBs fee structure shall be publically accessible and to be provided on request to the applicant
- Any change in the prescribed fee structure to be communicated to the applicant

351

Records

- The CB shall have a documented policy and procedures for the retention of records
- All the certified records to be retained for two certification cycles
- The CB shall keep records confidential

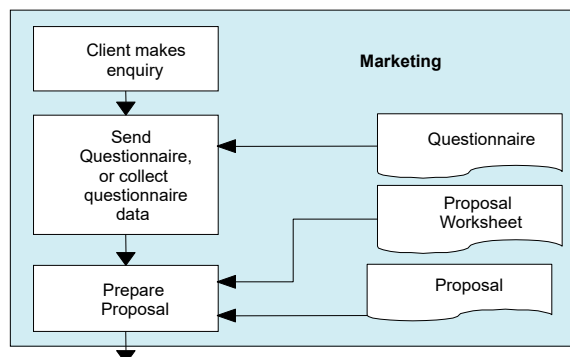
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Complaints & appeals

- CB to have documented procedure for handling complaints/ appeals;
- Complaints from all stakeholders, especially its certified producers as well as customers of its certified/applicant producers covered;
- Procedure to include receiving, recording, evaluating, establishing validity of complaint, investigating and taking decisions on complaints and appeals;
- Process step also include root cause analysis, correction and corrective actions;
- Complaints/ appeals as well as actions to resolve these to be recorded and tracked. Appellant informed along with reasons for decision
- Complaints/appeals to be handled by individuals/ committee

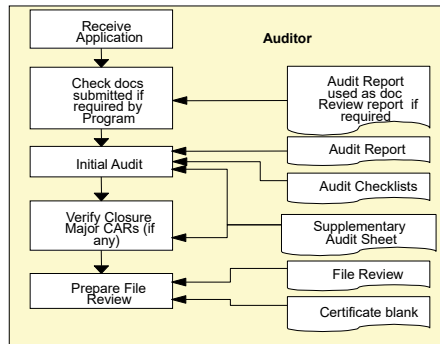
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Marketing, processing and follow - up



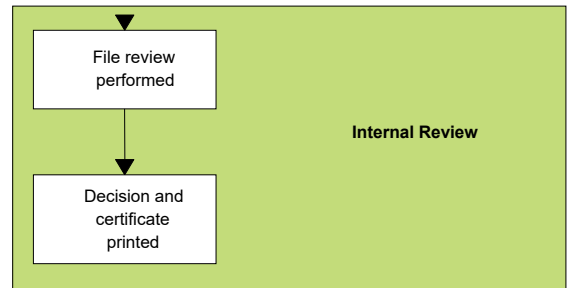
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CB AUDITING PROCESS



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CERTIFICATION DECISION



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GAP Certification Process

QUESTIONS AND DOUBTS



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EXERCISE 3

QUIZ



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Session 16

Auditing & Auditing Techniques

359

Session Objectives

The objective of this section is to understand the requirements of auditing as a part of GAP Certification and the auditing techniques.

360

Contents

1. Introduction to audits
2. Basic concepts and terminology
3. The audit process
 - Audit initiation/planning
 - Audit preparation
 - Audit execution
 - Audit reporting
 - Follow-up and corrective action

361

Why audit ?

To collect objective evidence to make an informed judgement about the compliance status of the systems or process being audited against the requirements of the criteria or a standard.

362

Terms and Definitions

- **Audit** - systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled
- **Audit evidence** - records, statements of fact or other information that is relevant to the audit criteria and verifiable
- **Audit criteria** – a set of policies, procedures or requirements used as a reference against which audit evidence is compared
- **Audit findings** - results of the evaluation of the collected audit evidence against audit criteria
- **Audit client**-organization or person requesting for an audit
- **Audit programme** – the arrangements for a set of one or more audits planned for a specific time frame and directed towards a specific purpose
- **Audit plan** – a description of the activities and arrangements to be carried out for an audit
- **Auditee** – the entity being audited

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Principles of Auditing

- Integrity conduct:** the foundation of professionalism
- Fair presentation:** obligation to report truthfully, accurately
- Due professional: care** application of diligence, judgement in auditing
- Confidentiality:** Security of information
- Independence:** the basis for impartiality of audit and objectivity of audit conclusions
- Evidence-based: approach** rational method for reaching reliable, reproducible audit conclusions in a systematic audit process

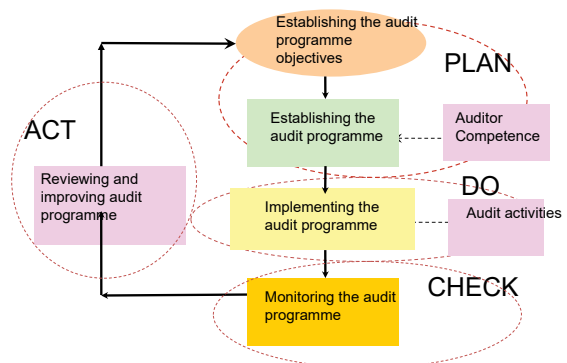
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Concepts of Auditing

- Audit programs are planned & managed to ensure that
 - audits are effective and consistent
 - audit conclusions are credible
- Audits are conducted using established methods and techniques
- Objectivity, independence and systematic approach followed
- Audits are authorized.
- Scope, objectives and criteria are clearly defined and agreed prior to commencing the audit
- Audit team members and audit program managers are competent for the tasks performed
- Audit team members act with due professional care and adhere to a code of ethics
- The relationship between the audit team, auditee and audit client is one of confidentiality, discretion and cordiality

365

Managing an Audit Programme



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Audit Objectives

Define what is to be accomplished and this may include :

- determination of the extent of conformity of the management system or parts of it, to be audited, with audit criteria;
- determination of the extent of conformity of activities, processes and products with the requirements and procedures of the management system;
- evaluation of the capability of the management system to ensure compliance with legal and contractual and other requirements to which the organization is committed;
- evaluation of the effectiveness of the management system in meeting its specified objectives;
- identification of areas for potential improvement of the management system.

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Audit Objectives

- Audit objectives may be based on
 - Management priorities
 - Commercial intentions
 - Management system requirements
 - Regulatory Requirements
- It is **NOT** an audit objective to
 - To find faults
 - To police processes and activities
 - To fix blame
 - To transfer responsibility for performance

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Audit Scope

- Extent and boundaries of an audit

Typically refers to :

- Physical location
- Organizational units
- Areas/sections
- Activities
- Time period covered

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A Reference Base / Audit Criteria

- Standards, certification criteria/audit criteria.
- Stated objectives and Policies.
- Formally defined procedures
- Client specifications.
- National regulations and legislation.

ISO/IEC 17065:2012

Requirements of the Certification Scheme (GAP)

Certification Bodies documented system

370

Types of Audit

- Adequacy audit
- Compliance audit
- Internal audit
 - First party
- External audit
 - Second party
 - Third party

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Types of Audit

- **Adequacy audit**

Adequacy audit determines the extent to which the documented system represented by the quality manual and associated procedures, work instructions and forms, adequately conform to the requirements of the standard/audit criteria.

- **Compliance audit**

Compliance audit seeks to establish the extent to which the documented system is implemented and observed by the work force at work place.

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External Audit

- Is an audit conducted by
 - A company on its own suppliers ;
 - Customer on their supplier;
 - An independent third party
 - Certification body
 - Statutory body
- It may an adequacy audit and /or compliance audit.

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Internal Audit

- It is most important of all audits as it requires a company to look into its own system, procedures and activities in order to ascertain:
 - whether they are adequate and are being complied with.
 - whether the system is as efficient and effective as it should be, and
 - whether changes are needed.

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Planning and Preparation

AUDITING

375

Frequency of Audits

- Status and importance of activities
- Significant changes in management organization, policy, methodology
- Changes in quality management systems or other management systems of the organization
- Evaluating effectiveness of corrective actions
- Frequency of customer complaints

376

Preparing plan for audit activities

- Preparing the audit plan based on
 - Scope of audit
 - Information gathered from audittee documentation
 - Effect of the audit activities on the audittee's processes
- Audit Plan facilitates efficient scheduling of the audit activities and includes
 - Audit objective, audit scope, audit criteria, locations, audit dates and duration, allocation of appropriate resources to critical areas of audit, scheduling

377

Audit Planning

- Scope and objective
- Audit time needed
- Team composition
- Preparation of audit schedule
- Notification of audit

Above activities which pertain to planning for individual audit activities within the audit program are generally to be done by the Quality Manager

378

Audit Plan

- WHICH departments / functions?
- WHEN to be audited?
- WHO will do the audit?
- WHAT is to be audited?
- Circulate

379

Consideration for Duration of Audit and Audit Sampling

- Criticality of the activity to be audited
- Number of persons involved in activities to be audited
- Complexity of processes / activities
- Very frequently carried out activities
- Less frequently carried out activities
- Results of previous audits
- Complaints

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Team Composition

- Decide on number of auditors
- Ensure independence of auditors
- Considerations for
 - qualification
 - Knowledge (technical as well as auditing techniques)
 - experience
 - seniority
- Rotation of auditors
- Training of new auditors

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Auditor Competence

Ability to apply knowledge and skill to achieve intended results

- Generic Knowledge & Skills
 - Audit principles, methods, procedures etc
 - Management system and reference documents
 - Applicable legal/contractual requirements applicable to auditee
- Sector specific knowledge and skills

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Auditor's Personal Attributes

- | | |
|--|-------------------------------|
| • Ethical | • Self-reliant |
| • Open-minded | • Decisive |
| • Diplomatic/tactful | • Organized |
| • Observant | • Open to improvement |
| • Perceptive (easily react to the situation) | • Culturally sensitive |
| • Versatile (adjustable) | • Collaborative (interactive) |
| • Tenacious (persistent) | |
| • Morally courageous | |

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Notification of Audits

- Details of auditee department/activity
- Purpose and scope of audit
- Date and time of visit
- Duration of audit
- Team composition
- Criteria document / standard
- Departments/activity to be audited
- Preliminary schedule of audit

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Audit Preparation

- Study of criteria documents and previous audit papers or any other relevant information
- Deciding audit strategy
- Preparation of checklists

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Study of criteria documents

- ISO/IEC 17065:2012
- Requirements of the certification scheme (GAP standard for fruits & vegetables)
- Certification body requirements
- The certification body documentation - quality manual, procedures, SOPs/work instructions, formats, etc.
- Regulatory requirements.

336

Document Review

Information Collection:

- Data Gathering
- Information Review



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Document Review

- To verify if the information in the documents is:
 - **complete** (all expected content is contained in the document);
 - **correct** (the content conforms to other reliable sources such as standards and regulations);
 - **consistent** (the document is consistent in itself and with related documents);
 - **current** (the content is up to date);
 - **covers** the audit scope
- provide sufficient information to support the audit objectives

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Audit Strategies

- Horizontal
- Vertical
- Trail following

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Audit Strategies

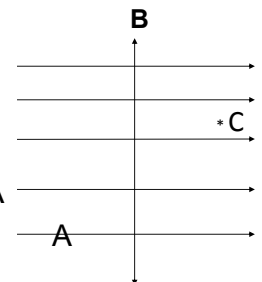
- Documentation A
- Document control A
- Control of records A
- Internal audit A
- Management review A
- CA and PA A

A = Horizontal Audit

B = Vertical Audit

C = Random Audit

CA & PA = Corrective action & preventive action



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Vertical Audit Examples

Area Procedure	Quality Manager Functions	Application Reviewer	Evaluator of Audit Reports
- I.A. - Mgmt Rev - Complain - Doc. Contl. - Rec. Contl.	↓		
- Selection of Sample • Application Review • Evaluation Report • Auditing Personnel • Complaints • Corrective actions • Preventive actions • Sanctions • Internal Personnel • Management Functions • Reporting the results etc.		↓	↓

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Horizontal Audit Examples

Area Procedure	Quality Manager Functions	Application Reviewer	Evaluator of Audit Reports
- I.A. - Mgmt Rev - Complain			
-Doc. Contl.			
-EQA			
- Selection of Sample • Application Review • Evaluation Report • Auditing Personnel • Complaints • Corrective actions • Preventive actions • Sanctions • Internal Personnel • Management Functions • Reporting the results etc.			

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Audit Guidance Tools

--Checklists

--Marked-up procedures

--Flow charts



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Audit Checklist

- A checklist should be a series of key requirements which need to be verified by seeking objective evidence
- A checklist is NOT a set of questions to be asked
- A good checklist will help to:
 - keep the audit on track
 - ensure that all the key facts are verified
 - provide a base from which to investigate activities

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Audit Checklist

- Criteria Checklist
 - Clauses of the standard
- Audit checklist
 - Combination of criteria requirements and Laboratory system – procedure/SOP/WI, etc.

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Audit Execution

- Opening meeting
- Audit
 - Gathering information
 - Validation
 - Evaluation
- Closing meeting

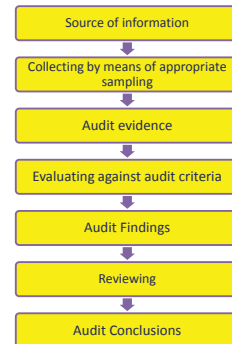
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Opening Meeting

- Explain audit objectives and scope
- Review audit schedule
- Explain modus operandi
- Explain reporting procedures
- Seek clarification, if required

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Process of Collecting and verifying information



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Collecting Information

- Audit evidence can be obtained through:
 - Observation of activities
 - Review of documents and records
 - Interviews with staff
- A departmental guide or the auditee can be asked to provide verbal evidence
- Clues requiring further research should be noted for investigation later

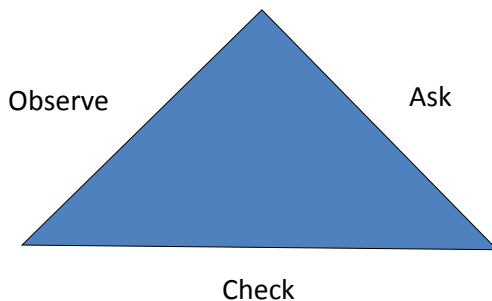
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What Is Objective Evidence

- Evidence which can be
 - stated and documented
 - Quantifiable, qualifiable
 - Verifiable
- Not influenced by emotion or prejudice
- Unbiased

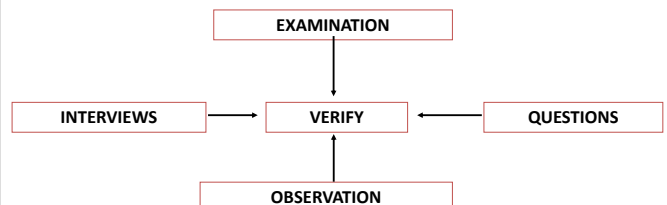
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Audit Triangle



401

Auditing Tools



402

Interview Technique

- Put the person at ease
- Explain your purpose
- Be polite, friendly but business like
- Be accurate and tactful
- Interview right people
 - the person who does the job
 - find out what are they doing
 - analyze what they are doing
- Interview in a congenial environment

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Interview Technique

- Do not look down
- Talk the language of auditee
- Speak clearly
- Don't confuse, ask one question at a time
- Ask, then listen
- Rephrase the question if not understood
- Come back if information is not available immediately

404

Collecting Evidence

- What is being done?
- Why it is being done?
- Who is responsible for doing it?
- How are they doing it?
- Where it should be done?
- Observe if the procedure is being followed
- Check the records for evidence

405

Type of Questions

- Close ended questions - Is this how you carry out the tests?
- Open ended questions – Why do you do it? How do you do it?
- Clarifying questions – Can you please explain why you do it?
- Antagonistic questions – Don't you know how to carry out this test?

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Auditor's Seven Friends

- What
- Why
- When
- How
- Where
- Who
- Show me

407

Open Ended Questions

- **Hypothetical questions**
 - Suppose captive power generator failed ... ?
 - What would happen if calibration is not done as per plan/ specifications ?

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Close Ended Questions

- Leading Questions
 - I understand you attach calibration stickers to all calibrated equipment?
 - Is it routine to check that calibration is valid before use ?
- Clarifying questions
 - do you mean to say that no training has been organised for your technical staff ?
- Antagonistic Questions
 - Why this department never completes corrective action report on time ?

409

Follow a Trail

- Follow the process from end to end
- Select pertinent records
- Were all the activities performed?
- Were the controls effective?
- Were the procedures or plans followed?

410

Evaluation of Evidence

- Evaluating against audit criteria
 - ISO 17065: 2012
 - GAP criteria
 - Documented procedure SOP, etc.
 - Conditions of contract, etc.
- Output
 - Noncompliance against audit criteria
 - Observation/concern – potential noncompliance
 - Opportunities for improvement

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Generating Audit Findings

- Evaluate audit evidence against audit criteria to generate audit findings
- Audit findings – conformity or non-conformity to audit criteria, opportunity for improvement
- Grade non-conformities
- Review non-conformity with auditee
 - acknowledgement of audit evidence being accurate
 - NC has been understood
 - Resolve diverging opinions
- Audit team to review audit findings at appropriate stages of an audit

412

What is a Nonconformity

- Non fulfillment of specified requirements (audit criteria)
- A condition adverse to quality
- Non fulfillment of specified requirements
 - Requirements specified in ISO 17025
 - Documented procedures & work instructions
 - Requirements of test methods etc
 - Related to the quality system
 - Related to technical activities

413

Reasons for Existence of Non-conformities

- The documented system does not comply with the specified requirements/ audit criteria
- Documented system has not been implemented.
- Implemented but not effective

414

How to Record Nonconformities

- Exact observation of the facts
 - Where was it found
 - What was found
 - Who was there
- Why it is a nonconformity
- Make it concise, objective and a non blaming statement
- Based on recorded objective evidence

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Types of Nonconformities

- **Major**
 - A significant non compliance with a QMS requirement
 - Failure of the complete system
 - Absence of QMS requirement
 - Significant number of minor nonconformities, widespread in different activities
- **Minor**
 - Isolated incidence of failure to comply with a procedure
 - Insignificant departure from QMS
 - Witnessed minor problem area in the testing activities
 - Minor problems in technical area

416

How to Draw Conclusions

- To what extent documented system addresses the requirements of the audit criteria.
- Whether the documented system has been put into practice by the laboratory
- To what degree the documented system practised in the laboratory is effective
- Do the non conformities raised indicate a particular area(s) of weakness in the organization

417

Closing Meeting

- Thank the auditee department
- Explain the scope of audit and present the
 - system strengths and weaknesses
 - system limitations
 - audit findings
 - agreement on corrective action, if any
 - Conclusions

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Reporting

AUDITING

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Reporting

- The scope and objectives of the audit
- Audit dates
- Audit schedule
- Identity of team members and auditee's representatives
- Specific department/activity audited
- Identification of documentation against which the audit was conducted (audit criteria)
 - reference documents
 - documented system

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Reporting

- Details of aspects examined, persons interviewed, records verified, etc
- Details of compliances with evidences
- Non conformities, concerns and opportunities for improvement
- Audit team's judgement of the extent of auditee's compliance with the applicable quality objectives
- Audit report distribution list
- Establishing corrective action as relevant along with dates for completion.

421

Aspects not for Reporting

- Proprietary or confidential information
- Subjective statements without substantiation by objective evidence
- Recommendations not related to audit findings
- Reporting trivial matters should be avoided
- Statements reflecting emotions or prejudices
- Aspects neither mentioned nor discussed during the closing meeting

422

Corrective Action

- Identification of nonconformity
- Establish
 - who is responsible for controlling the activity
 - Who is responsible for correction
 - Who is responsible for root cause analysis and corrective actions
- Expected time line
- Who and how the corrective actions will be verified
- Follow up audit activities if needed for verification of implementation of corrective actions

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Improvements

- The audit results should be analysed and form the basis for:
 - determining preventive actions
 - identifying areas for improvement
 - input to management reviews

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Auditing and Auditing Techniques

QUESTIONS AND DOUBTS



425

EXERCISE 4 AUDITING



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MODULE 5 Preparing a Farmer/ Producer or Producer Group for GAP

Session 17 Preparing the farmer/ farmer groups for implementing GAP

Session 18 The application and approval process

427

Session 17

Preparing the farmer/ farmer groups for implementing GAP

428

Session Objectives

- To understand
 - how a producer/producer group needs to go about implementing the GAP requirements including developing the procedures and maintaining records.
 - how to establish and maintain the internal control system of the producer group
 - how the producer group management registers producers and ensures that the system of implementation of GAP is being followed by them

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Contents

1. Requirements for GAP implementation
2. Documentation requirements
3. Requirements for records
4. Internal control systems – establishment and maintenance
5. Registration of producers by producer group and ensuring that the system of implementation of GAP is being followed by the producer.

430

Requirements of Producers/ Groups

- Producer needs to implement five sets of requirements
 - Country's GAP standard requirements (the 5 modules);
 - The CB procedures for certification;
 - Applicable regulatory requirements of the country of production and where produce would be sold/traded;
 - Customer requirements
 - Producer/group's own set of requirements to ensure that system would stay together and improve (internal control system, documentation, records)

"Producer" means farmer engaged in GAP for production of fruits and vegetables

"Producer Group" means a group of more than one farmer

431

Implementation of GAP

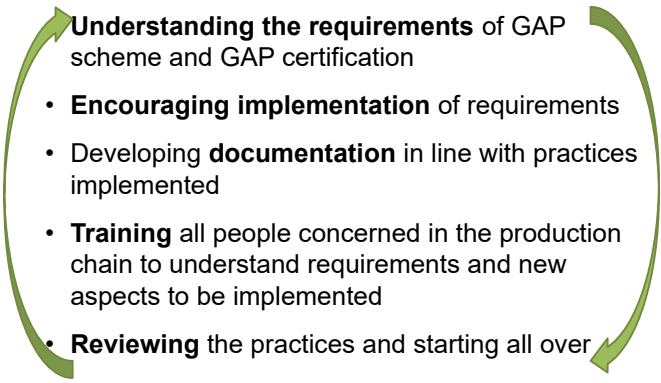
Implementation of requirements need to be

- consistent – same way and every day
- effective – achieve its purpose
- demonstrable – able to show that producer follows them

How can this be done??

432

By consistently.....

- 
- **Understanding the requirements** of GAP scheme and GAP certification
 - **Encouraging implementation** of requirements
 - Developing **documentation** in line with practices implemented
 - **Training** all people concerned in the production chain to understand requirements and new aspects to be implemented
 - **Reviewing** the practices and starting all over

433

Documentation

Documentation includes

- **Documents** – that will guide producer/ group into what needs to be done & how to do it
- **Records** – what has been done on daily basis which
 - Is useful information for farmer
 - assists to demonstrate implementation of requirements

Review of these will also help improve the system

434

What documents needed

Documents to demonstrate how the requirements are to be followed.

Remember

- documents number – neither too many nor too less
- document detail – neither too elaborate nor too scanty

Documents need to be appropriate and effective

Documentation depends on

- The **GAP standard** (National GAP/ other GAP) that producer/ group would like to implement and subsequently be certified against
- The **option of certification** – individual producer or producer group

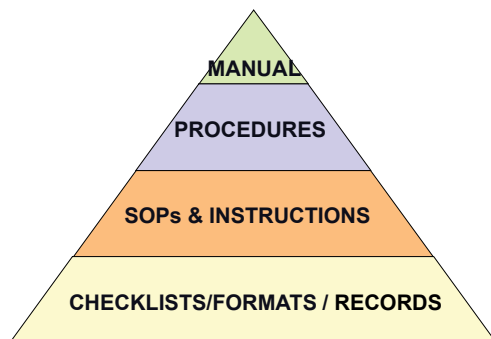
435

Types of documents

- **Manual** – outlines the entire operation followed by producer or producer group
- **Procedures** – give a general guideline of how to perform a task, can refer to a SOP for specific task e.g. Procedure to conduct review
- **Standard operating procedures** (SOP) or work instruction – give specific instructions on how to do a specific task e.g. cleaning of spraying equipment
- **Checklists** – “aide memoire”
- **Formats** – prompts record keeper what details are to be kept

436

Document structure/level



437

Documents for GAP implementation include

- Documents required by GAP standard
- Documents required by CB/ SO – individual or group producer
- Documents required for system management – management system documents for individual or group producer

438

Documents required by GAP Scheme/ Standard

- Farm plan/ property map
- Risk assessment record
- Personal hygiene instructions
- Waste management plan
- Job responsibility
- Cleaning
- Pest control plan
- Quality Plan (for produce quality module)

439

Quality Plan

A quality plan contains the following information:

- **Process steps** - What steps are involved in growing, harvesting and postharvest handling?
- **Quality hazards** - What quality loss can happen if something goes wrong during the process?
- **Causes of quality loss** - What can go wrong during the process to cause the quality loss?
- **Good agricultural practices** - What control measures, monitoring activities and record keeping are needed to prevent or minimize the risk of the quality hazard occurring?

440

Documents required by CB

- **Individual Producer** – application form, details of produce and farm
- **Producer Group** –Management and internal control system documents
 - ✓ Internal audit procedure
 - ✓ Management review procedure
 - ✓ Document control procedure
 - ✓ Record control procedure
 - ✓ Corrective action procedure
 - ✓ Identification and traceability procedure
 - ✓ Revocation/withdrawal procedure
 - ✓ Subcontracting procedure

441

System management documents (for individual producers)

- Optional for individual producers
- Why – maintain own systems
- Same as those required by Producer Group
 - ✓ Document control procedure
 - ✓ Record control procedure
 - ✓ Internal Audit procedure
 - ✓ Management Review procedure
 - ✓ Corrective action procedure
 - ✓ Subcontracting

442

Documents required by Group from Producers

- Information about farm,
- Farm plan/ property map,
- Risk assessment record,
- Personal hygiene instructions,
- Waste management plan,
- Job responsibility,
- Cleaning,
- Pest control plan,
- Quality Plan (for produce quality module)

443

Format of a document/procedure

Name of Farm & Logo Document number

Name of Procedure

Responsibility:

Procedure or Instruction:

- 1.
- 2.
- 3.
- 4.

5. Records Maintained

No	Name of Record	Record Number	Retention Period	Maintained By
1.				

Approved by

Month Year

1 of 4

444

Documents need to be controlled (especially in case of producer group)

- Procedure for document control maintained
- All documents to be approved
- Current document to be identifiable
- Documents to be numbered
- Documents to be distributed to the people who require them
- Changes to be reapproved by same authority which initially approved them
- Obsolete documents to be removed from circulation
- Record formats & operational procedures controlled
- External origin documents (GAP Standard) maintained

445

Activity – 30 minutes (Optional)

Preparation of Procedure for

- spraying
- training of farmers
- training of workers for handling of pesticides
- harvesting of vegetables including packaging for dispatch

How to go about it

- The participants to divide into 4 groups.
- Each group will prepare one procedure.
- Each group will give its presentation.

446

Records for GAP implementation

- Records required by GAP scheme/standard
- Records required by Certification Body – individual or group producer
- Records required for system management – Management System records

447

Records required by GAP Scheme Individuals/Groups

- Farm plan record
- Risk assessment records
- Planting material record
- Irrigation records
- Chemical procurement, usage, inventory
- Spray record
- Pest and disease monitoring record
- Postharvest chemical record
- Chemical authorization form
- Fertilizer & soil additives record
- Harvesting & packing record
- Job responsibility & training record
- Cleaning & pest control plan
- Calibration records
- Incident investigation records
- Complaints & corrective action report
- Traceability (delivery & destination) records
- etc.....

448

Format of Documents to be Maintained by Producers

1. Farm Management Plan					
2. Affidavit (if subcontracted)					
3. Land Record :- Ownership documents / records					
4. Farm Map :- Showing boundaries, neighboring plot details, permanent features of the farm, cropping pattern.					
5. General Information :- About the project, climate, rainfall, temperature, soil characteristics.					
6. Crop Plans :- Plans for the whole farm for one year including rotation crops, green manure crops, mixed crops etc. Details should include					
Crop	Area	Variety	Planting Material Quantity	Planting Time	Estimated Yield
7. Input purchase & Stock record :- Should have the following minimum details					
Date of Purchase	Particulars of the product	Quantity	Bill No.	Supplier's Address	Product date / information Received
					Total Stock
8. Farm Operation Diary					
Date	Details Of the operation Eg. Sowing	Plot/Field No.	Equipment's / Implements Used	Supr. Remarks	
9. Soil Fertility Management Record					
Date	Product Applied	Plot/Field No.	Quantity / rate	Supr. Remarks	
10. Plant Protection Record					
Date	Pest / Disease Observed	Rate & Quantity of pesticide used	Other measures taken	Supr. Remarks	
11. Storage Areas on the farm for the inputs and products should be recorded					
Store No.	Product stored / to be stored				Capacity of the store
12. Product sales / dispatch record					
Date	Particulars of the products	Quantity sold / dispatched	Lit No.	Balance & stock	Mode of Dispatch
					Consignee

449

Records required by a CB

- Individual producers
- Producer group
 - ✓ Internal audit records
 - ✓ Management review records
 - ✓ Document control records
 - ✓ Record control records
 - ✓ Corrective action records
 - ✓ Identification and traceability records
 - ✓ Revocation/withdrawal records
 - ✓ Subcontracting records

450

Systems Management Records

- Same as required by the Producer Group records by CB
 - ✓ Internal audit records
 - ✓ Management review records
 - ✓ Document control records
 - ✓ Record control records
 - ✓ Corrective action records
 - ✓ Subcontracting records

451

Records required by ICS Group from farmers

- Management and internal control system documents
 - ✓ Identification and traceability record
 - ✓ Corrective action record
 - ✓ Subcontracting record
- Others
 - ✓ Risk assessment record,
 - ✓ Waste management record,
 - ✓ Training record, cleaning record,
 - ✓ Pest control record,
 - ✓ Quality plan implementation record (for produce quality module)

452

Records need to be controlled

- All record formats preferably to be **approved**
- Current record format to be **identifiable & in use**
- Records need to be **numbered**
- **Changes** to record not permitted without authorization and reason for change
- Records need to be **legible & retrievable**
- Records need to be **retained** for a predefined time period e.g. ASEAN GAP requires retention for 2 years

453

Sample Record

KIKI Farms Ltd.

Postharvest Chemical Record

Record No. KFL/R/15

Business/Grower Name:

Chemical	Tank Size	Tank Mixing Rate		Application Method
		Fresh	Top-up	

September 2012

454

Activity – 30 minutes (optional)

The participants will divide into 4 groups. Each group will be assigned to prepare one of the following records. Each group will make its presentation. The records are:

- Cleaning and pest control plan;
- Risk assessment record;
- Planting material record;
- Incident investigation record

455

Internal Control Systems (ICS)

- **Producer group** - is a group of farmers of which members organized themselves as a group of producers for a crop/ crops
- **GROUP REQUIREMENTS**
 - Applicable for a group of farmers constituting a legal entity
 - Comprises of 2 aspects - **Individual farms** and **Group ICS** governed by system requirements

456

Development of Suitable ICS

- **Identify qualified personnel** on ICS & ensure training on both GAP & ICS development/ implementation
- **Identify farmers** who want to participate in GAP certification & support awareness/ training on GAP
- Develop **criteria & conditions** for ICS & relevant documents/ forms to be included in the ICS Manual (initially simple - gradually improved over time) ICS staff to be fully **aware of all** requirements prior to initial audit
- All documents (criteria and conditions, SOPs, working procedures, forms etc) and operations of ICS staff to gradually improve over time.

457

ICS Requirements

- **Legal Entity**
 - Documentation to establish producer group as a legal entity covering its ownership, administrative structure, management, production demonstrating relationship among producer members to group
- **Organizational Structure**
 - Availability of **adequate resources** for group operations
 - **Organizational structure** indicating coordinator (manager), internal inspectors/ auditors, their r&r, identification of committees to impose sanctions, review corrective actions, responsibilities for pack house operations (if applicable), etc.
- **ICS Coordinator (ICS Manager)** – to be assigned
- **ICS Personnel**
 - A person(s) to be made responsible for each procedure or task of the ICS, they should be aware of their responsibilities and qualified for the job

458

ICS Requirements

Organization and ICS Personnel

- **Internal Auditor** - sufficient in number and qualified
- **GAP approval personnel** - A qualified person ("GAP Approval Manager") or certification committee
- **Field officer (extension specialist, field advisor)** - Training of farmers in GAP farming is crucial so the position of field officer is very important
- **Conflicts of interest** - The ICS personnel must not have any conflicts of interest that might hinder the work.
- **Competency and training of staff**
 - Staff associated with GAP implementation/ certification to be adequately trained and competent
 - Competency & training requirements documented

459

ICS Requirements

- **Producer Register**
 - All farmers under the system to be **registered with the group**
 - **Register maintained** - name, contact person, address, farm data sheet (crop & production area, basic farming method), quantity of expected produce, date of internal audit, status of certification, sanction details etc
 - A **contract** (commitment declaration) signed b/w each farmer & ICS operator in language understood by farmer
 - **An overview map** (village/ community map) showing each farm location
 - **Changes in farm data** –either updating or new farm data sheet to be completed

460

ICS Requirements

- **Written Contract (commitment declaration)**
 - **Contractual agreement between producer member & group** established – Non-registered member cannot join group
 - Agreement to **cover**
 - farm details,
 - obligations to comply with GAP requirements,
 - technical guidance,
 - sanctions and
 - any internal requirements of the group

461

ICS Requirements

Risk Management

- **Basic Risk Assessment**
 - A detailed **initial risk assessment (RA)** - to identify risks at farm level, during purchasing, processing or (export), transporting (product under responsibility of the ICS operator)
 - The ICS covers all measures to minimize identified risks
- **Critical Control Points & continuous risk management**
 - The initial RA is the first step toward raising awareness of critical aspects to be covered in the ICS
 - RA exercise done regularly
 - ICS operator to be aware of critical control points

462

ICS Requirements

- **Quality Manual/ ICS manual** – pre-requisite for group certification:
 - **Covers** - Management structure, policy, working procedures, documents, scope of certification, GAP requirements, overview of scheme including sites, farmers, etc
 - **Distributed** to members of GAP approval Committee/ internal auditor/ farmers or organizations that are part of system
 - Quality manual **periodically reviewed/ updated, as needed**
 - **Changes communicated** to all concerned including CB
 - Internal GAP Standard – reference standard for internal control

463

ICS Requirements Internal GAP Standard

- **Scope of certification** - All regulations/ standards pertaining to GAP certification to be listed in ICS manual.
- **Internal GAP Standard** is the reference standard for internal control
 - includes the farm production requirements of the relevant external regulations/standards for certification .
 - Presented in a form for easy understanding by ICS staff
 - requirements of internal standard (& practical implications for farmer) communicated clearly to all farmers in local language
- The internal standard to address the following:
 - production units/crops under farm management & certification.
 - Farm practices (e.g. seeds, fertilizer application, sustainable soil management, plant-protection)
 - Harvest/ post-harvest procedures

464

ICS Requirements

- **Internal Producer and Production Sites Inspections**
 - All registered producers assessed at least once a year by ICS qualified auditor
 - **Audit in presence of farmer** (or representative), include visit of entire/whole farm, storage of inputs/ harvested products, brief check of post-harvest handling
 - **Visit documented** in Farm Audit Checklist, signed by internal auditor & farmer /representative
 - If **major NCs**, reported immediately to the ICS Manager and measures taken as per internal sanction procedures
- **Documentation of the ICS**
 - The ICS ensures that internal control is documented & all documentation of each certified farmer available for audit.

465

ICS Requirements

- **Product traceability and segregation**
 - A product traceability system established which ensures that no mixing of GAP with non GAP product
 - Harvesting area to be managed for registered produce - traceability from purchase through post harvest handling, storage and distribution
- **Withdrawal of non-conforming certified product**
 - **Procedure documented** for withdrawal of NC products, annually tested for effectiveness
- **Registration of additional certified producers or sites**
 - The group to immediately **update records** for any addition or withdrawal of producer sites from the original list of registered producers and CB informed

466

ICS Requirements

- **Common Pack House**
 - In case of 1 or more common pack houses handling member produce, entire requirements related to pack house to be complied with
- **Agreement with buyer**
 - Agreement to be in place between the group and buyer to prevent misuse of GAP certification and its trademarks
- **Sub-Contracting**
 - Sub-contracting services if used shall ensure the following:
 - ✓ Comply with GAP certification requirements
 - ✓ Competency of contractors assessed & records maintained
 - ✓ Contracts b/w producer & sub-contractors to comply with groups QMS/ relevant procedures

467

ICS Requirements

Purchasing, Handling, Processing, Export

In case organization buys GAP products for marketing, procedures needed to ensure the integrity of the certified product in all steps of product flow and avoid mixing between GAP/ non-GAP

- **Purchasing Procedures**
 - to ensure integrity of GAP product at the crucial interface of farmer - purchaser.
- **Storage, Handling and Processing Procedures**
 - During all handling of GAP produce, **GAP status** of the product and **compliance** with requirements of GAP standard ensured
 - Central processing units always subject to full external audit by CB
- **Purchasing, Handling & Processing Personnel**
 - **Purchasing officers responsible** for correct purchase of GAP produce from farmers
 - If a processing unit operated by the ICS operator, a **GAP processing manager** assigned

468

ICS Requirements

Internal Quality Management System Audit

- Internal audit of QMS carried out atleast yearly by a qualified internal auditor, any NC suitably addressed
- **Competency of internal auditor** to be defined
- Each registered farmer is assessed by the internal control at least once a year by qualified internal auditors
- **Internal audit procedure** to be established - cover review of internal inspection reports; documenting producer status; Audit in presence of the farmer (or representative), include visit of whole farm, storage of inputs/ harvested products, brief check of post-harvest handling
- Format of internal audit maintained and completed - Visit documented in Farm Audit Checklist, signed by internal auditor & farmer /representative

469

ICS Requirements

Internal Approvals, Non-compliances, Corrective actions, Sanctions and Infringement

- **Procedures** to approve farmers defined
- **Procedures** for NCs, CA defined.
- **Procedures** for sanctions, withdrawals defined.
 - If no NC or infringement, approval of the procedure through ICS
 - If NCs, appropriate corrective actions/mitigating measures.
 - If major NCs, immediately reported to the ICS Manager and measures taken as per internal sanction procedures
 - If suspended or awarded sanctions, establish mechanism to promptly **notify CB**
 - **Record** NCs, corrective actions and decision process

470

ICS Requirements

• Complaint Handling

- Have **documented procedure** for handling complaints - receipt, registration, causative analysis and redressal
- **Records** related to complaints to be maintained

471

ICS Requirements

Management Review

- A review of the internal control system at defined intervals; **atleast yearly**, records of review maintained
- **Inputs for review** to include – internal/external audit results, feedback from different sources, preventive/ corrective actions, follow up of previous reviews, changes in standards/regulatory requirements of the country and where produce is sole/traded; appeals/complaints, etc
- **Review outputs** – decisions/ actions on improvement of the systems, improvement in the Producer Group towards requirements of standard, resource needs.

472

PROCESS FOLLOWED BY THE GROUP MANAGEMENT FOR REGISTRATION OF PRODUCER AND ENSURING COMPLIANCE TO THE SYSTEM

473

Farm Control & Approval Procedures

Registration of new farmers

- All farmers under the system (wishing to be certified) need to be formally registered as GAP farmers.
- Total area under each farmers' management, crops and areas under each crop & basic farming methods to be recorded on a farm data sheet
- A commitment declaration (contract) must be signed between each farmer and ICS operator in a language understood by farmer
- An overview map (village or community map) showing each farm location
- If farm data changes considerably, a new farm data sheet to be completed, or data in file updated

474

Describe Practices

- Producers should clearly describe practices in detail.
- Crop rotation plans - each rotation used and how often.
- A soil fertility management program - how nutrient toxicity will be prevented and how soil fertility will be monitored.
- Soil conservation practices, including methods for preventing soil erosion and monitoring soil conservation.
- Water quality practices, including methods to minimize water contamination, protect water quality including management of irrigation and run-off water, and how the effectiveness is monitored.

475

Describe Practices contd...

- Weed management plan, including problem weeds, weed control methods, and evaluative methods to measure and monitor success of plan.
- Pest management plan, including work with a pest control advisor, whose contact information should be available. The plan must include methods for controlling pest damage to crops, a record of all pest control products used and intended for use, the frequency of pest monitoring etc.
- List equipment for planting, tilling, spraying, and harvesting and other practices.

476

List of inputs used

- A list of each substance used, including its ingredients, source, and where/in what context it will be used.
- Keep the proofs that the inputs are approved for use on crops cultivated.
- Save all inputs labels and material safety data sheet (MSDS)

477

Monitor Practices

- Practices to demonstrate the Produce is safe.
- Records of plant petiole analysis, soil analysis etc.
- Test results to document nutrient deficiencies and demonstrate if micronutrient applications are needed
- Good maintenance records for all equipment and tools used.
- Notes on the problem crop diseases, prevention strategies used, a record of inputs used and intended for use, the evaluated effectiveness of the program, methods for monitoring effectiveness of program, and the frequency of disease monitoring.
- Plans for IPM
- If compost is made on-farm, then records of composting has to be maintained.

478

Describe Record Keeping System

- The GAP requires that producers shall maintain a transparent and traceable recordkeeping system to include:
 - Records regarding seed, seedlings and/or other planting materials
 - Invoices/ bills of all purchased product for use
 - Records of all plant protection products applied
 - Records of all fertilizer/ soil conditioners used
 - Records of any other products used during crop production including herbicides, plant growth regulators, etc

479

Describe Steps for Preventing Contamination

- If producing both certified and non certified foods, demonstrate that growing areas, seedlings/plants, harvest and storage areas, and input practices (including watering) are separate and non-contaminating.
 - List in detail all crops and products; where they are stored, grown and applied; and total of certified and non certified production
 - Describe how transportation of certified products takes into account steps to protect integrity of the products and protecting against contamination.
 - Specify how crop storage will segregate certified material from non - certified product, and how storage units are cleaned, pests (rodents and insects) are controlled and damage caused by them prevented, and how any stored crop inputs are used or planned to be used.

480

Describe Steps for Preventing Contamination Contd...

- Explain how contamination with non-certified material will be prevented in processing, packaging, and shipping materials.
- Show steps taken to protect crops from contamination during harvest and describe use and material of product containers and explain any potential contamination problems that may occur with the harvest of crops.
- Specify adjoining land use, location, type of buffer area, width of buffer, use of any crops in the buffer area, safeguards used to protect crops from contact with buffer and buffer crops during harvest, other safeguards used to prevent accidental contamination, signs posted, and the methods and frequency of monitoring for crop contamination.

481

Describe Plan to Prevent Incidence of MRL being Exceeded

- Always follow technical advisors instruction
- Do not apply any plant protection products near expected date of harvest
- Based on the pruning/planting/seeding date or based on experience, note the approximate expected date of harvest on the PPP records so that there is awareness that PHI falls at least 10 days before expected date of harvest.
- While applying any Plant Protection Product to crop checks that the first possible date of harvest never crosses the expected date of harvest.
- Check before harvest that the PHI is complied with
- Check for the MRL compliance before harvest. (not mandatory)
- Residue analysis to be from ISO17025 accredited labs

482

Provide Additional Information as Requested by the Certification Body

- Any additional information required by the certification body to be provided. If there are any doubts, it is best to include the information in the farm plan. This way, the producer and the agent can work together before inspection takes place.

483

Selection of a CB by the Producer Group

484

Selection of a CB by the producer group

- Scope of Certification –within the scope of the CB.
- Government/Private/Voluntary
- Reputation of CB/ acceptability –an accredited CB - greater confidence.
- Target market of products –selection of CB better known in the target market of products and country.
- Audit approach and positive approach – a positive approach aiming to improve farmer's compliance to GAP and not to find non-compliances just for the sake of it.
- Competent and experienced auditors for the scope of produce that the farmer is applying for.
- CB to demonstrate impartiality, confidentiality, competence.
- Cost of certification – cost-effectiveness of CB.

485

Preparing the farmer/ farmer groups for implementing GAP

QUESTIONS AND DOUBTS



486

Session 18

The application and approval process (farmers perspective)

487

Session Objectives

To understand

- the rights and obligations of producers;
- how to apply for certification;
- how the Certification Body evaluates the producer/producer group and grants certification and how the producer should react to the assessment and certification; and
- the benefits of GAP implementation and certification to the producer

488

Contents

- Rights and obligations of producers
- Application for GAP certification
- Review of application
- Evaluation – off-site and on-site
- Non - Conformities (Critical, Major, Minor) & Corrective Actions
- Report & Review
- Certification decision & Grant of Certificate

489

Rights & Obligations of Producers

Rights

- Timely information and services from CB
- Rights to complain and appeal
- Select Options – individual & group but not for same produce
- Cancel application or request temporary suspension
- Right to change CB

Obligations

- Understand requirements of the scheme
- Accept auditing plan/requirements
- Select options
- Treat CB decision as confidential
- Compliance with requirements – GAP/CB
- Notifying change to production status

490

Applicant for Certification

Applicant under the Certification Scheme is the producer who can be classified into two categories:

- Individual producer and
- Producer group - a group consisting of two or more producers, each with a legal status.

491

Application for GAP Certification

- **Actions prior to application** - producer to adopt practices for at least three months; conduct self assessment (use checklist developed under GAP standard)
- **Apply in prescribed format** – format of CB
- **Producer information**
 - **General information** - name, address, contact details (for communication); proof of legal entity or certified identity, details of land held and whether under ownership/ lease, details of work force, details of previous certification (if any)
 - **Production information** - type of produce, production site, area under production, whether green house or field production, single harvest/ multiple harvest, length of time area under cultivation
 - **Details of previous certification**, if any.

492

Review of Application by CB

Reviewed for Adequacy by CB within defined time limit

- Only applications completed in all respects are accepted – **so ensure completeness**
- If correction needed, notified to applicant – **correct & resubmit**
- Acknowledged and producer ID given by CB (complete applications only)
- For rejected cases, fresh application after gap of 1 year – **ensure that all information included and implementation as per requirements**
- Instances of misuse of certification mark / conviction by court, if found subsequently or during review may attract disqualification – **follow guidance for use of logo/CM**

493

Evaluation

- **Evaluation** - Once producer is registered, CB proceeds as follows:
 - **Pre assessment** (optional) or pre-evaluation - assessed through document review / preparedness for the audit
 - **Offsite review** - to prepare audit plan for farm evaluation
 - **Farm evaluation** - External QMS / ICS audit carried out by qualified auditor as per audit plan - provided to the auditee (producer group) - structured checklist used - observations recorded against each requirement/CP – **if any objection to an auditor inform CB in advance**
 - **Audit observations** given to auditee at end of site evaluation – **insist on this**
 - **NCs** explained during closing meeting – **may seek clarifications if not clear**

494

Inspection Duration & Timing

- Inspection Duration :

- An operation **without produce handling or on farm packing** – min 3 hours on site
- An operation **with on farm packing** - min 6 hrs
- An operation **with produce handling** - min one day (8 Hrs).
- QMS audit for **group certification** - min 8 hrs for a group with <50 members and one centralized pack house.

See that durations are followed

- Inspection Timing

- Ideal timing is as **close to harvest** as possible to verify all control points during crop season – **invite during correct timing**
- For CP not possible to be inspected a **follow-up visit** may be scheduled/ satisfactory proof submitted by producer
- **Certificate issued** after all control points verified & NCs closed – **address NCs and submit appropriate proof to CB**

495

Report and Review

- **Evaluation Report**
 - Reflects the conclusions and observations vis-à-vis evaluation objectives and farm management plan.
- **Review**
 - Independent review of evaluation report by competent persons in the CB
 - NCs verified for satisfactory compliance before grant of certification
- **Non-Compliances (NCs)** – Critical, Major, Minor - NC observed during evaluations are recorded and producer explained about the same with advise for corrections and corrective actions – **clearly understand these and address them**

496

NC Interpretation

- Any NC detected during the inspection needs to be explained to the producer then and there itself and this is the right of the auditee.
- The clause of the standard against which the NC occurs to be quoted along with NC .
- If any procedural lapse is seen, it indicates that the person handling is not aware of the procedure - the immediate correction will be to follow the procedure and train person on the same.
- If any incomplete records is seen then it shows that the person handling is not careful about filling records, the immediate correction will be training on the importance of properly maintaining records. Never fill the past records.
- In case of an infrastructure inadequacy, this may need to be constructed.
- Producer/group are required to close the NC as per timelines set under the Scheme

497

Certification Decision and Grant of Certificate

- **Certification Decision**
 - sole responsibility of the CB
 - Impartiality and absence of conflict of interest in certification decision making
 - Producers communicated reasons for decision if declining certification – **see if the reason is correct, otherwise appeal powers available**
- **Granting of Certificate**
 - The certificate in predefined format with details of validity, scope – **check that details correctly entered**
- **Directory of Certified producers**
 - The CB to display directory of valid certifications / list of suspended and cancelled certificates on its website – **see that name in directory and website**

498

Complaint Handling

- The producer has the right to complain for which the CB should define the complaint handling procedure and communicate it to producer/group
- The procedure should be clearly communicated and publically available and address:
 - mechanism for recording complaints and providing receipt of complaint
 - tracking the complaint
 - Assessment, investigation and response of complaints,
 - communication of the decision and closing of the complaint
- The CB to ensure confidentiality of the complaint while processing so that the business and other interest of the producer/group are not harmed

499

Appeals – Provisions for Farmers

- The process for handling of appeals made by the producer/ group shall be treated as follows:
 - Recording all appeals received
 - Independent investigation including gathering all necessary information for establishing validity of appeals; and
 - deciding about actions required to be taken in response to the same.
- The farmer may appeal to the CB or the SO directly for resolution of his issue
- In respect of appeal against the CB or Scheme Owner's decision, an independent appeals panel may be constituted for looking into appeal and deciding/recommending actions as appropriate.
- The CB and SO to take due care in handling appeals and inform producer/groups information on method of escalation if dissatisfied with the decision made by the appellate team

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Benefits of GAP – Implementation/ Certification

- How can certification be used advantageously by producer
- GAP implementation and certification offers three primary benefits
 - economic risk reduction,
 - improved market access opportunities, and
 - improved fresh fruits and vegetables safety and quality

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Benefits of GAP – Implementation/ Certification

- Economic risk reduction
 - The risk of large economic losses—such as a significant drop in sales (especially if contaminated produce is traced to the farm operation), damage to the farm's reputation, and potential lawsuits—is also reduced with GAP implementation and certification.
 - Another important, but subtle, benefit of GAP adoption and certification is what economists call the “positive externality” effect to the entire fresh-produce industry.

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Benefits of GAP – Implementation/ Certification

- Improved opportunities for market access
 - GAP certification opens markets for producers to expand sales to major supermarket chains, school systems, restaurants, and other market outlets.
 - Many retailers and food-service buyers now require third-party GAP certification as a condition of purchase.
 - Many importing countries under their SPS measures require food safety esp. related to chemicals (pesticide residues) and heavy metal (cadmium, lead, mercury etc.)

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Benefits of GAP – Implementation/ Certification

- Improved safety and quality
 - Understanding and implementation of good agricultural practices to improve the safety and quality of the produce
 - Use of efficient and effective systems for pest control, irrigation systems etc.
 - Traceability of produce from the farms
 - Availability of information in form of documents and records to review/analyze and improve. These would also help produce to demonstrate “due diligence”

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Benefits vs Costs

- Weighing against the potential benefits of GAP adoption and certification are the following costs:
 - cost of adopting GAPs can include
 - ✓ large capital investments, such as water purification equipment,
 - ✓ or more moderate expenditures, such as training workers to improve hygiene, upgrading record-keeping technologies, testing produce for specific hazards like pesticide residues, heavy metals etc.
 - cost of third-party GAP certification is hiring the certifier
 - Look into group or individual certification aspect

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Understanding Benefits

- GAPs actually won't increase consumer demand for fresh produce unless growers let buyers know that they have taken steps to improve food safety on their farms.
- Third-party GAP certification offers a way for growers to let buyers know that they follow appropriate food safety practices on their farms.
- Growers must measure the economic cost against the benefits before deciding whether to pursue certification.

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The application and approval process

QUESTIONS AND DOUBTS



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Session 19

Evaluation and Feedback

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OVERALL QUESTIONS AND DOUBTS



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